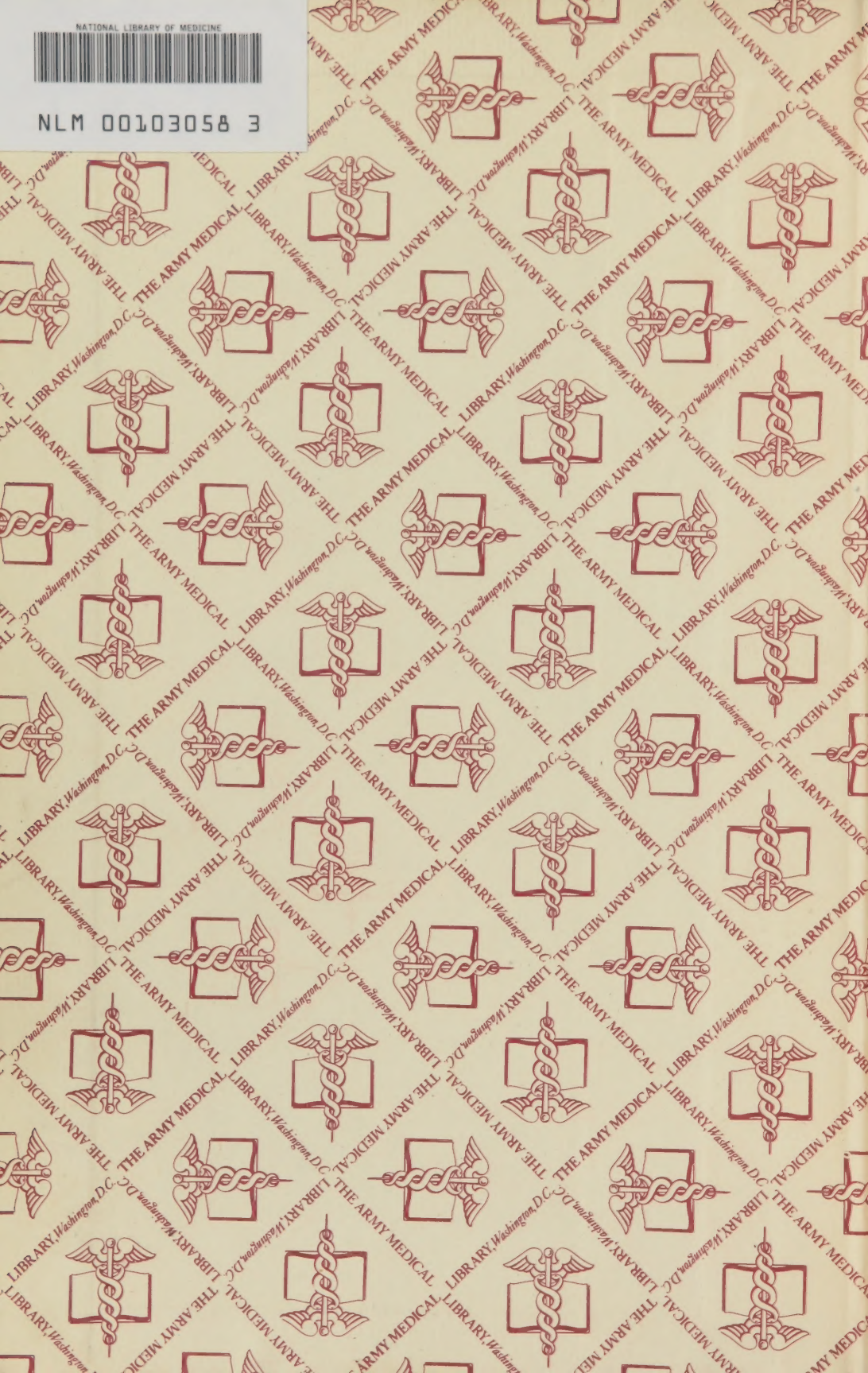
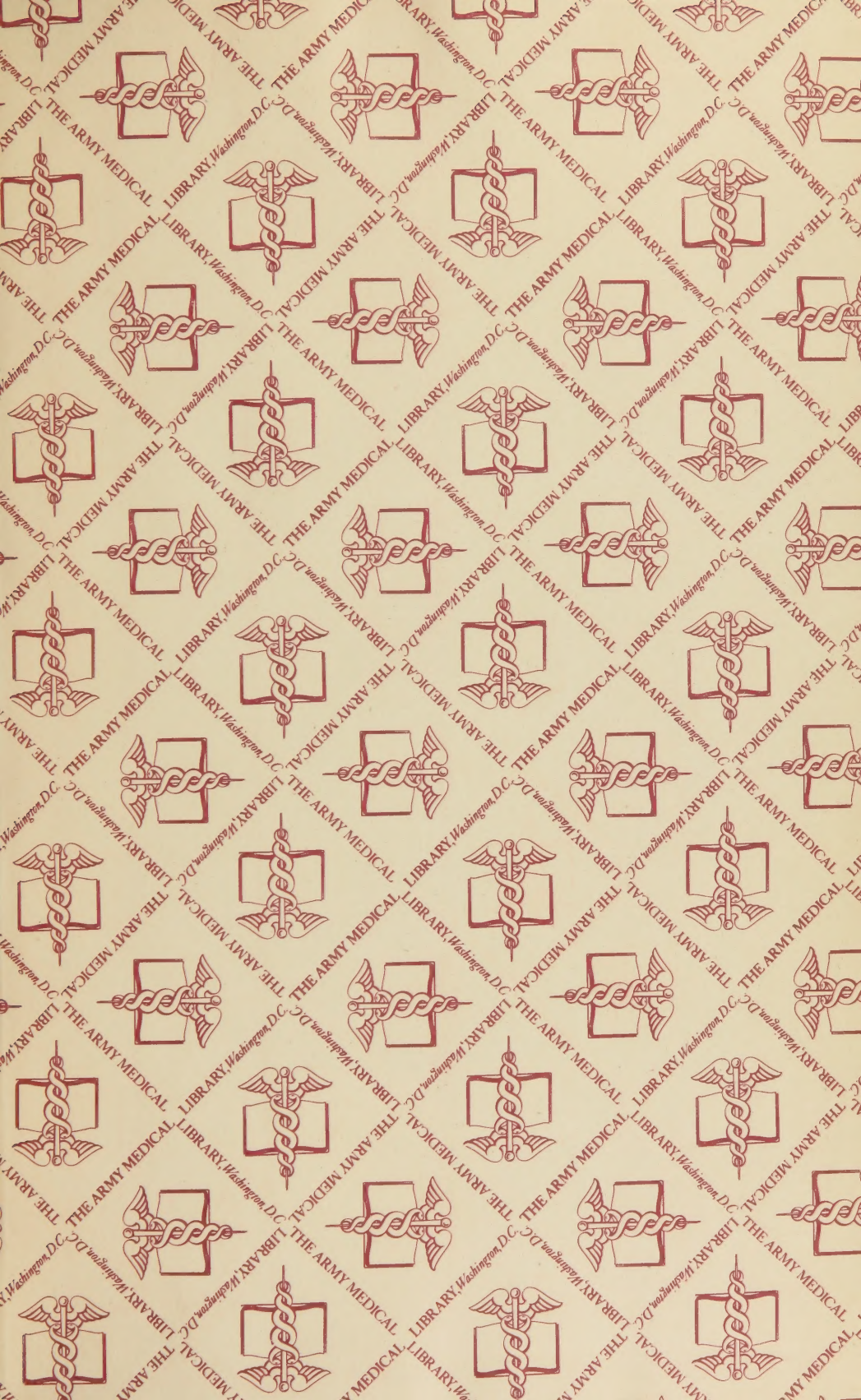




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NAPHEYS'
MODERN THERAPEUTICS.

VOLUME II.

NOW READY. THE NINTH EDITION.

VOLUME I. OF THIS WORK.

GENERAL MEDICINE

AND

DISEASES OF CHILDREN.

BY THE SAME EDITORS.

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MODERN THERAPEUTICS

MEDICAL AND SURGICAL

INCLUDING THE

DISEASES OF WOMEN AND CHILDREN

A COMPENDIUM OF RECENT FORMULÆ AND THERAPEUTICAL DIRECTIONS
FROM THE PRACTICE OF EMINENT CONTEMPORARY PHYSICIANS,
AMERICAN AND FOREIGN.

NINTH EDITION, REVISED AND ENLARGED.

VOLUME II.

GENERAL SURGERY, GYNECOLOGY AND OBSTETRICS

BY

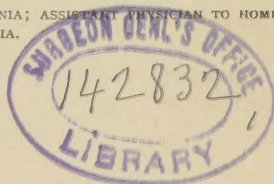
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PREFACE TO NINTH EDITION.

THE present volume includes the revision of the latest previous editions of the Surgical Therapeutics and of the Gynecological and Obstetrical Therapeutics, published together uniformly with the Ninth Edition of the Medical volume. The greater part of the last edition is retained, with the modifications required to render it suitable for contemporaneous practice, but a large amount of new material has been added, which surgical and gynecological progress has made necessary. The arrangement of matter will also be found considerably altered to suit the ideas of the editors, both in the order of chapters, and in that of the individual citations. The latter have been generally grouped so as to bring therapeutic consideration of similar symptoms or indications of the diseases, closer together; and the purpose of the order of chapters will be evident upon examination. It is hoped by the editors that the present edition in its new form and with its many new features and modifications, will prove as acceptable to the practitioner as did the previous editions.

TABLE OF CONTENTS.

PREFACE.

PAGE

TABLE OF CONTENTS.

I. ANÆSTHETICS.

GENERAL ANÆSTHETICS.....	17
Alcohol.....	17
Bonwill's Method.....	18
Carbon Tetrachloride.....	18
Chloral.....	19
Chloroform.....	20
Emergencies of Anæsthetization.....	24
Ether.....	27
Ethidene Dichloride.....	30
Ethylic Bromide.....	30
Hypnotism.....	31
Methylene Bichloride.....	32
Nitrous Oxide.....	34
Pental.....	36
Anæsthetic Combinations.....	36
LOCAL ANÆSTHETICS.....	37
Acetic Acid.....	37
Alcohol.....	38
Carbolic Acid.....	38
Carbon Bisulphide.....	39
Carbonic Acid Gas.....	40
Chloral.....	40
Cocaine.....	41
Ether.....	42
Esmarch Bandage.....	44
Ethyl Chloride.....	44
Ice.....	45
Iodoform.....	45
Menthol.....	45
Methyl Blue.....	46
Morphia.....	46
Potassium Bromide.....	46
Rhigolene.....	46
Saponin.....	47
Faradic Anæsthesia.....	47
Anæsthesia of the Larynx.....	47

II. THE THERAPEUTICS OF INFLAMMATION.

THE PREVENTIVE TREATMENT OF INFLAMMATION.....	49
Removal of Irritation.....	49
Importance of Rest.....	50
Limitation of Blood-Supply.....	50
Cold Applications.....	51
Warm Immersion.....	51
Use of Drugs.....	52
THE IMMEDIATE TREATMENT OF INFLAMMATION.....	53
Constitutional Treatment.....	53
Local Treatment.....	56
Asthenic and Irritative Types of Inflammation.....	58
Chronic Inflammation.....	60
General Medical Treatment.....	60
NOTES ON REMEDIES.....	64
Internal Remedies.....	64
Cold.....	65
Friction.....	67
Heat.....	67
Lotions.....	68
Poultices.....	69
Venesection.....	72
Diet in Inflammation.....	73

III. THE TREATMENT OF WOUNDS.

GENERAL TREATMENT OF WOUNDS.....	74
ANTISEPTIC METHODS.....	79
ASEPTIC MEASURES.....	85
TREATMENT BY OCCLUSION.....	106
OPEN TREATMENT.....	108
WATER DRESSINGS.....	111
DRY DRESSINGS.....	112
EARTH DRESSINGS.....	113
ALCOHOLIC DRESSINGS.....	113
Notes on Remedies.....	115

IV. THE TREATMENT OF SPECIAL FORMS OF WOUNDS.

INCISED WOUNDS.....	124
LACERATED AND CONTUSED WOUNDS.....	124
CONTUSIONS.....	127
Notes on Remedies.....	129
PUNCTURED WOUNDS.....	131
SUBCUTANEOUS WOUNDS.....	132
GUNSHOT WOUNDS.....	133
SABRE WOUNDS.....	137
ARROW WOUNDS.....	138

	PAGE
BITES AND STINGS.....	139
Hydrophobia.....	140
Notes on Remedies.....	145
Snake Bites.....	147
Notes on Remedies.....	151
Stings of Insects.....	153
POISONED WOUNDS.....	154

V. THE NON-INFECTIOUS COMPLICATIONS OF WOUNDS.

HEMORRHAGE.....	156
Notes on Remedies.....	160
PAIN	166
SHOCK.....	171
Notes on Remedies.....	177
TRAUMATIC SPASM AND PARALYSIS.....	178

VI. THE COMPLICATIONS ARISING FROM INFECTION OF WOUNDS.

ANTHRAX (CHARBON, MALIGNANT PUSTULE).....	181
DISSECTING WOUNDS.....	183
ERYSIPELAS.....	185
Notes on Remedies.....	193
GANGRENE.....	197
Hospital Gangrene	198
Senile Gangrene	202
Gangrene from Thrombosis.....	203
Notes on Remedies.....	205
GLANDERS (FARCY).....	206
PHAGEDÆNA.....	207
PYÆMIA AND SEPTICÆMIA.....	209
Notes on Remedies.....	214
SURGICAL FEVER	215
TETANUS	217
Notes on Remedies.....	222

VII. PRIMARY SUPPURATIVE LESIONS.

ABSCESSSES.....	227
Notes on Remedies.....	232
BED-SORES.....	234
Notes on Remedies.....	235
CARBUNCLES AND FURUNCLES.....	236
Notes on Remedies.....	246
FELON (WHITLOW, PANARIS).....	248
ULCERS	250
Notes on Remedies.....	260

VIII. LESIONS FROM HEAT AND COLD.

BURNS AND SCALDS.....	264
Notes on Remedies.....	272
LIGHTNING STROKE.....	274
SUNSTROKE (THERMIC FEVER, HEAT FEVER).....	275
Notes on Remedies.....	284
FROSTBITE AND FROZEN LIMBS.....	284
Notes on Remedies.....	289

IX. DISEASES OF THE SKIN.

GENERAL THERAPEUTICS OF SKIN DISEASES.....	292
Diet in Skin Diseases.....	295
Antiseptics in Skin Diseases.....	296
Arsenic in Skin Diseases.....	297
Mercury in Skin Diseases.....	301
Parasitocides.....	302
Local Applications.....	305
Sulphur in Skin Diseases.....	306
ACNE.....	307
ALOPECIA.....	312
ECZEMA.....	315
ERYTHEMA.....	321
FAVUS (SCALD-HEAD).....	323
HERPES.....	325
IMPETIGO.....	327
LEPRA.....	328
LUPUS.....	329
LICHEN.....	332
PHITHEIRIASIS (PEDICULOSIS).....	333
PITYRIASIS.....	335
PRURIGO.....	337
PRURITUS.....	338
PSORIASIS.....	340
RHUS TOXICODENDRON.....	343
SCABIES.....	346
SYCOSIS (MENTAGRA, BARBER'S ITCH).....	349
TINEA, RINGWORM.....	353
URTICARIA.....	356

X. RESPIRATORY SYSTEM (INCLUDING WOUNDS OF NECK AND CHEST.)

ASPHYXIA (NOXIOUS GASES—CHOKING—DROWNING).....	359
EMPHYEMA.....	365
WOUNDS OF THE CHEST.....	368
INJURIES OF THE NECK.....	371

XI. LESIONS OF THE CIRCULATORY SYSTEM.

ANEURISM.....	374
Notes on Remedies.....	380
EMBOLISM AND THROMBOSIS	383
LYMPHANGITIS	385
NÆVUS	387
Notes on Remedies.....	390
PHLEBITIS.....	392
VARICOSE VEINS	393

XII. LESIONS OF THE DIGESTIVE SYSTEM (INCLUDING WOUNDS OF THE ABDOMEN).

CARIES OF THE TEETH AND TOOTHACHE.....	397
STOMATITIS.....	404
Aphthous Stomatitis.....	404
Catarrhal Stomatitis.....	408
Gangrenous Stomatitis.....	409
Parasitic Stomatitis.....	410
Notes on Remedies.....	410
PHARYNGITIS.....	414
TONSILLITIS (QUINSY, CYNANCHE).....	421
TONSILLAR HYPERTROPHY.....	427
Notes on Remedies.....	432
STRICTURE OF THE OESOPHAGUS.....	436
STRICTURE OF THE PYLORUS (GASTRIC CANCER).....	440
HERNIA.....	443
INTESTINAL OBSTRUCTION, OCCLUSION AND INTUSSUSCEPTION.....	456
INTESTINAL PERFORATION.....	462
TYPHLITIS (PERITYPHLITIS, APPENDICITIS).....	464
HEMORRHOIDS (PILES).....	466
Notes on Remedies.....	472
FISSURE OF THE ANUS.....	477
FISTULA OF THE ANUS.....	480
PROLAPSUS OF THE ANUS.....	482
STRICTURE OF THE RECTUM.....	483
PRURITUS OF THE ANUS.....	485
WOUNDS OF THE ABDOMEN.....	486

XIII. LESIONS OF THE URINARY SYSTEM.

CYSTITIS (ACUTE AND CHRONIC).....	489
Notes on Remedies.....	499
DYSURIA, RETENTION OF THE URINE, STRANGURY, IRRITABLE BLADDER.....	502
Notes on Remedies.....	505
ENURESIS, INCONTINENCE OF URINE.....	507

	PAGE
FLOATING KIDNEY.....	510
DISEASES OF THE PROSTATE BODY	512
RENAL AND VESICAL CALCULI AND GRAVEL.....	517
Notes on Remedies.....	524
INJURIES TO THE KIDNEY AND BLADDER.....	526
XIV. LESIONS OF THE REPRODUCTIVE SYSTEM IN THE MALE.	
BALANITIS.....	529
HYDROCELE	532
IMPOTENCE	536
Notes on Remedies.....	545
MASTURBATION (SELF-ABUSE, ONANISM).....	548
ORCHITIS (EPIDIDYMITIS).....	552
SPERMATORRHEA.....	558
Notes on Remedies.....	568
VARICOCELE.....	569
XV. VENEREAL DISEASES.	
ACUTE GONORRHEA.....	571
CHRONIC GONORRHEA (GLEET).....	586
Gonorrhoeal Prostatitis.....	590
Gonorrhoeal Orchitis.....	592
Inflammatory Edema of Prepuce.....	593
Gonorrhoeal Ophthalmia and Conjunctivitis.....	594
Gonorrhoeal Rheumatism.....	596
Stricture of the Urethra.....	599
Notes on Remedies.....	600
SYPHILIS	608
The Hard Chancre.....	608
Constitutional Syphilis	615
Treatment of the Eruption.....	629
Mucous Patches and Sore Throat	631
Syphilitic Laryngitis	632
Congenital Syphilis	632
THE SOFT CHANCRE (CHANCROID)	633
The Bubo	636
XVI. LESIONS OF THE BONES AND JOINTS, INCLUDING THE HEAD AND SPINE.	
BUNION AND GANGLION	637
CARIES AND NECROSIS.....	639
FRACTURES	641
OSTEITIS AND PERIOSTEITIS	645
SPRAINS.....	647
SYNOVITIS (ARTHRITIS)	649
WOUNDS OF THE HEAD	654
LESIONS OF THE SPINE	658
SPINA BIFIDA.....	658

XVII. LESIONS OF THE ORGANS OF SPECIAL SENSE.

DISEASES OF THE NOSE.

GENERAL THERAPEUTICS	661
EPISTAXIS	667
Notes on Remedies.....	668
OBSTRUCTION OF THE NASAL DUCT.....	669
POST-NASAL CATARRH.....	670
OZAENA	671
Notes on Remedies.....	677
POLYPI	680
RHINITIS.....	682

DISEASES OF THE EYE. *

AMAUROSIS.	683
BLEPHARITIS.	684
CONJUNCTIVAL DISEASES	685
CORNEAL DISEASES	695
IRITIS	697
STYES (HORDEOLUM).....	702
WOUNDS OF THE EYE.....	703
Notes on Remedies.....	705

DISEASES OF THE EAR.

ECZEMA OF THE AURICLE.....	715
OTITIS.	716
OTORRHOEA	719
POLYPUS OF THE EAR	721
TINNITUS AURIUM.....	721
Notes on Remedies.....	722

DISEASES OF THE LARYNX.

INTRALARYNGEAL GROWTHS	726
------------------------------	-----

XVIII. THE TREATMENT OF NEW GROWTHS AND SCROFULA.

I. BENIGN GROWTHS.

ANGEIOMA, NÆVUS	728
FIBROID AND FIBROCYSTIC GROWTHS.....	728
GOITRE	729
LIPOMA.....	733
LYMPHOMA (GLANULAR ENLARGEMENT).....	734
WARTS AND CORNS	736
Notes on Remedies.....	737

	PAGE
II. MALIGNANT GROWTHS.	
GENERAL THERAPEUTICS	739
CANCER	740
Notes on Remedies:	752
III. SCROFULA.	
GENERAL THERAPEUTICS	758
SCROFULOUS ULCERS.	765
Notes on Remedies.	765

PART I.

GYNECOLOGICAL THERAPEUTICS.

INTRODUCTORY.

General Remarks on the Treatment of Diseases of Women.....	773
Balneo-Therapy in Diseases of Women.....	776
Plan for a Gynecological Examination.....	779

I. DISEASES OF THE OVARIES, DISORDERS OF MENSTRUATION AND GENERAL DISEASES.

SYNOPSIS OF DIAGNOSTIC POINTS.....	781
OVARITIS, ACUTE.....	782
OVARITIS CHRONIC	782
Ovarian Neuralgia.....	786
Ovarian Dyspepsia.....	787
Ovarian Hyperæmia.....	787
Notes on Remedies	789
SALPINGITIS	790
EXTRA-UTERINE PREGNANCY	791
OVARIAN TUMORS.	
Synopsis of Diagnostic Points.....	792
Treatment.....	795
Internal Medication.....	795
Injection into the Sac.....	796
Electrolysis.....	796
Hygienic and Dietetic Treatment.....	798
AMENORRHÆA.	
Synopsis of Diagnostic Points.....	798
Treatment.....	799
Menstruation Absent.....	801
Menstruation Scanty or Irregular.....	801
Menstruation, Sudden Suppression.....	802
Menstruation, Chronic Suppression.....	802
Plethoric Amenorrhœa.....	805

	PAGE
Nervous Amenorrhœa.....	805
Tuberculous and Scrofulous Amenorrhœa.....	805
Amenorrhœa by Counter-Fluxion.....	805
Notes on Remedies.....	808
General Measures.....	812
DYSMENORRHOEA.	
Synopsis of Diagnostic Points.....	814
Treatment.....	814
Congestive Dysmenorrhœa.....	817, 825
Neuralgic Dysmenorrhœa.....	817
Obstructive Dysmenorrhœa.....	817
Membranous Dysmenorrhœa... ..	818, 825, 826
Ovarian Dysmenorrhœa.....	818
Menorrhagic Dysmenorrhœa.....	821
Irregular Dysmenorrhœa.....	821
Dysmenorrhœa from General Causes.....	821
Dysmenorrhœa through Insufficiency.....	821
Rheumatic Dysmenorrhœa.....	823
Notes on Remedies.....	826
Mechanical Remedies.....	829
MENORRHAGIA AND METRORRHAGIA.	
Synopsis of Diagnostic Points.....	830
Treatment.....	831
Intra-uterine Injection, etc.....	834
Notes on Remedies.....	841
Vaginal Injections.....	846
II. DISEASES OF THE UTERUS AND ITS ANNEXES.	
SYNOPSIS OF DIAGNOSTIC POINTS.....	848
General Observations.....	848
Uterine Symptoms.....	849
Uterine Inflammations.....	849
Metritis and Cervicitis.....	850
Endometritis and Endocervicitis.....	851
METRITIS (NON-PUERPERAL, ENDO-, PERI- AND PERAMETRITIS, UTERINE CATARRH, ETC).....	852
General Treatment.....	852
Local Treatment.....	853
Chronic Endometritis.....	854
Metritis.....	856
Chronic Parenchymatous Metritis.....	857
Uterine Dyspepsia.....	857
Intra-Uterine Medication.....	860
Uterine Injections.....	860
Crayons or Pencils.....	864
Ointments and Glyceroles.....	865
Capsules.....	866
Powders.....	866
Pessaries.....	866
Notes on Remedies.....	866
External Measures.....	867

	PAGE
CERVICITIS (ULCERATION AND GRANULATION OF THE OS).	
Diagnostic Points.....	868
Indolent Ulcer.....	868
Inflamed Ulcer.....	869
Fungous Ulcer.....	869
Senile Ulcer.....	869
Diphtheritic Ulcer.....	869
Treatment.....	868, 869
Treatment, Mechanical.....	874
Notes on Remedies.....	877
Uterine Tents.....	879
DISPLACEMENTS.....	881
Retroversion and Anteversion	882
Prolapse.....	882
Flexures	886
Procidentia.....	887
NON-MALIGNANT GROWTHS.....	889
Polypi	889
Fibrous Growths.....	891
Medical Treatment.....	892
Notes on Remedies.....	897
Other Measures.....	898
MALIGNANT GROWTHS.....	899
Cancer.....	899
Cancer, Epithelial.....	902
STERILITY AND ANAPHRODISIA.....	903
Notes on Remedies.....	908
NYMPHOMANIA.....	909
Notes on Remedies.....	909
III. DISEASES OF THE VAGINA, URETHRA, AND BLADDER.	
SYNOPSIS OF DIAGNOSTIC POINTS	911
VAGINITIS, ACUTE AND CHRONIC—VAGINAL CATARRH—LEUCORRHOEA—COLPITIS....	912
Vaginal Injections.....	912, 920
Vaginal Irrigations.....	913
Medicated Tampons.....	913, 924
Vaginal Cataplasms.....	914
Vaginal Suppositories.....	914, 924
Notes on Remedies.....	919
Other Local Measures.....	923
VAGINITIS (SPECIFIC, GONORRHOEAL).....	925
Gonorrhoeal Urethritis.....	927
Gonorrhoeal Metritis	927
VAGINISMUS AND DYSPAREUNIA.....	928
Notes on Remedies.....	932
VAGINAL GROWTHS.....	932
Caruncle of the Urethra.	933, 934
Vegetations.....	934
Vaginal Cysts.	935

	PAGE
PRURITUS VULVÆ SEU VAGINÆ AND VULVITIS.	936
Eczema Vulvæ.....	939, 941
Notes on Remedies.	942
CYSTITIS.....	945
URETHRITIS	950
URINARY DISORDERS—IRRITABLE BLADDER, DYSURIA, POLYURIA, ISCHURIA, ETC.....	953
Irritable Bladder.....	955
Incontinence of Urine.....	956

PART II.

OBSTETRICAL THERAPEUTICS.

INTRODUCTORY.

Case Taking in Midwifery.....	959
-------------------------------	-----

I. THE DISORDERS OF PREGNANCY.

HYGIENE OF THE PUERPERAL STATE.....	962
Food.....	963
Clothing	963
Exercise	963
Sleep	964
Mental Condition.....	964
Marital Relations.....	964
ABORTION AND PREMATURE LABOR.....	964
Threatened Abortion.....	964
Inevitable Abortion.....	964
After-Treatment.....	966
Treatment of Sequelæ.....	967
Induction of Premature Labor.....	971
Notes on Remedies.....	974
VOMITING AND NAUSEA OF PREGNANCY.....	976
Notes on Remedies.....	980
SYMPATHETIC NERVOUS DISORDERS	983
Palpitation	983
Syncope	984
Neuralgia	984
Headaches	984
Insomnia	984
Hypochondriasis	985
Cough	985
Pruritus.....	986
Urticaria	987
Herpes	987

	PAGE
DIGESTIVE DERANGEMENTS OF PREGNANCY.....	987
Diarrhœa	987
Constipation	987
Icterus Gravidarum	988
ALBUMINURIA OF PREGNANCY.....	989
Notes on Remedies.....	991

II. COMPLICATIONS, DISORDERS, AND SEQUELÆ OF PARTURITION.

ANÆSTHETICS IN LABOR.....	993
Anæsthetics in Labor in cases of Organic Heart Disease.....	997
Notes on Remedies.....	1000
ANTISEPTICS IN LABOR	1001
PLACENTA PRÆVIA.....	1006
TEDIOUS LABOR	1008
Rigid Os and Atony	1008
Notes on Remedies.....	1011
External Measures.....	1014
AFTER PAINS	1014
Notes on Remedies.....	1021
PUERPERAL HEMORRHAGE	1022
Notes on Remedies.....	1027
PUERPERAL ECLAMPSIA.....	1030
Notes on Remedies.....	1035
General Measures	1036
PUERPERAL MANIA	1037
PUERPERAL FEVER (PUERPERAL SEPTICÆMIA, PUERPERAL PYÆMIA).....	1042
Notes on Remedies.....	1047
PELVIC CELLULITIS AND PERITONITIS (PUERPERAL PHLEBITIS AND METRITIS).....	1050
Diagnostic Points.....	1050
Notes on Remedies.....	1058
Other Measures.....	1058
PHLEGMASIA DOLENS.....	1059
PUERPERAL CONVALESCENCE	1062
COCCYGODYNIA.....	1064

III. DISEASES OF THE MAMMARY GLAND AND OF LACTATION.

MASTITIS AND MAMMARY ABSCESS.....	1066
Notes on Remedies.....	1070
General Measures.....	1071
MAMMARY TUMORS.....	1072
Diagnostic Points.....	1072
CARCINOMA.....	1076
MAMMARY NEURALGIA (MASTODYNIA).....	1077

TABLE OF CONTENTS.

xix

	PAGE
GALACTORRHOEA.....	1078
Notes on Remedies.....	1079
AGALACTIA AND OLIGOGALACTIA.....	1080
Notes on Remedies.....	1084
DISEASES OF THE NIPPLES.....	1084
Notes on Remedies.....	1089

MODERN SURGICAL THERAPEUTICS.

I. ANÆSTHETICS.

GENERAL ANÆSTHETICS.—*Alcohol—Bonwill's Method—Carbon Tetrachloride—Chloral—Chloroform—Emergencies of Anæsthetization—Ether—Ethidene Dichloride—Ethylic Bromide—Hypnotism—Methylene Bichloride—Nitrous Oxide—Pental—Anæsthetic Combinations.*

LOCAL ANÆSTHETICS.—*Alcohol—Carbolic Acid—Carbon Bisulphide—Carbonic Acid Gas—Chloral Hydrate—Cocaine—Ether—The Esmarch Bandage—Ethyl Chloride—Ice—Iodoform—Menthol—Morphia—Potassium Bromide—Rhigolene—Saponin—Anæsthesia of the Larynx.*

GENERAL ANÆSTHETICS.

ALCOHOL.

The vapor of heated alcohol was used to induce anæsthesia in surgical operations before the discovery of ether or chloroform. The insensibility of the drunkard also suggested its internal use for the same purpose.

Of recent years it has been extensively employed by Prof. JOHN LYNK, M. D., of Cincinnati. He depends upon it almost entirely in his surgical operations, believing that it leaves the functions, especially those of the heart, in a more normal condition than chloroform. He advises the patient to drink freely of whisky, in the case of a robust male to the amount of about a pint. Very little chloroform is then needed, or, in minor operations, none at all. (*Cincinnati Lancet and Observer*, May, 1876.)

Although it is probable that this method will not receive the general sanction of surgeons, the value of a small amount of alcohol taken shortly before the inhalation of chloroform or ether cannot be denied, and should generally be remembered and acted on. Its value when administered before the inhalation of chloroform is not only to be measured by the diminished amount of chloroform necessary for anæsthesia, but also by the fact that it counteracts to a certain extent the depressive influence the chloroform exerts upon the heart.

BONWILL'S METHOD.

This method is named after its discoverer, W. G. A. BONWILL, D. D. S., of Philadelphia. The anæsthesia is produced by rapid breathing of ordinary atmospheric air.

To produce the proper effect, the patient must open the mouth, breathe freely, quickly, and deeply, and after a few seconds or minutes of such steady, continuous breathing, the symptoms of partial anæsthesia supervene, as is evidenced by the absence of feeling on pinching or pricking with a pin. At this stage any operation should be made. The anæsthetic effect passes almost immediately away, and the patient feels no pain in the operation if done dexterously and without hesitation. It may be particularly commended in the extraction of teeth, for which it was originally introduced.

This method is said by some to be one of the simplest, and at the same time one of the most beneficial plans in small operations about the eye and the like, that have been presented to the profession; its application being very easy, requiring no recumbent position on the part of the patient, calling for no apparatus for its administration, and being perfectly free from any of the disagreeable effects of ether and chloroform.

On the other hand, Dr. HENRY GIBBONS, Jr., of San Francisco, (*Pacific Med. and Surg. Jour.*, October, 1880,) condemns it as dangerous and tending to asphyxia.

CARBON TETRACHLORIDE.

This substance has been employed as an anæsthetic by various European surgeons.

Dr. PROTHEROE SMITH, (*Lancet*, 1867,) found it useful in removing neuralgic pain; in mitigating the sufferings of labor, without hindering the parturient efforts; and in inducing sleep in nervous exhaustion. He claims that it rarely produces nausea or sickness,

is pleasanter to inhale than chloroform, and produces anæsthesia with a less amount of muscular spasm and rigidity.

Mr. ARTHUR ERNEST SANSOM says that as far as its earlier stages are concerned, it is all we want; it is stimulant, anodyne, hypnotic; and it produces no adverse sign. But for the anæsthesia necessary for the performance of surgical operations, as well as for any prolonged employment, it is altogether undesirable. The accidents of its physical condition, its ponderous vapor, its insufficient volatility for the system readily to disembarass itself of it, are so many reasons for its non-employment in anything like large doses. Moreover, the better known anæsthetics may be employed in every connection in which this substance is recommended, with much less chance for serious accidents.

CHLORAL.

Professor ORÉ, of Bordeaux, has introduced the intravenous injection of chloral as a means of producing general anæsthesia, and it has found some warm defenders in Belgium and Germany.

The formula which ORÉ recommends is the following:

i. R.	Hydrate of chloral,	10 grammes,
	Distilled water,	30 grammes.

The apparatus required consists of a glass syringe, graduated down to centigrammes, and containing half the quantity above stated; and a very fine "three-quarter" gold trocar and canula. A band is placed round the arm above the point selected for operation, and when the vein has become sufficiently prominent, it is pierced through the skin. The operator knows he is in the vein by withdrawing the trocar, when blood flows through the canula. The band is then removed, and the syringe is applied to the canula; but before doing this the blood should be seen escaping from it by a jet. The operation is to be conducted slowly. At first only 50 centigrammes are to be injected. If the patient bears this, we may go on to one gramme, and so on, pausing at each division to watch for symptoms. When the subject begins to complain of an inclination to sleep, we are to go slowly, as anæsthesia is not far off. The canula is withdrawn when insensibility is complete. Eight or ten grammes are usually necessary for an adult, but six or seven grammes are capable of producing the effects required. The duration of the operation ought not to exceed ten minutes. The injection should have the surrounding temperature. It is an indispensable precaution, how-

ever, to have an electrical apparatus at hand, in order to rouse the patient from his insensibility by passing a current along the course of the pneumogastric, should that be deemed necessary.

The advocates of this method claim for it the following advantages :

1. Absence of any preliminary stage of excitement.
2. Absence of nausea and vomiting.
3. Accurate graduation of the dose administered.
4. Absolute character of the anæsthesia and muscular relaxation produced.
5. Prolonged blunting of the patient's sensibility, which protects him from the influence of shock.

Among the *hypothetical* disadvantages of the system may be enumerated risk of thrombosis and embolism, difficulty of producing insensibility, danger of prolonged stupor, inflammation of the wounded vein. The *observed* disadvantages are transient dyspnœa, occasional irregularity of the heart's action, presence of a small quantity of blood and albumen in the first urine passed after the injection, and risk of fatal syncope.

According to M. BOUCHUT, children can be placed in a condition of absolute anæsthesia by means of chloral given by the mouth in doses of gr. xl-lx, without gastric disturbance. In this condition minor operations can be performed, and the child will awake in three or four hours, with no knowledge of the pain.

CHLOROFORM.

This is the most potent of all anæsthetics, and its use is still advocated by many eminent surgeons. Only the alleged dangers attending it prevent its exclusive employment. Many of these arise from its ignorant or heedless administration. The following rules should be observed :

Preliminaries.—Unless very feeble, the patient should fast for three hours before the inhalation. Twenty minutes before the inhalation a dose of brandy should be given in water. Many surgeons who continue in the use of chloroform as an anæsthetic, prefer to give the patient, within an hour before anæsthetization, a fluid drachm or two of the aromatic spirits of ammonia or a dose of the carbonate of ammonia (gr. x-xv), in order to sustain the heart. By a number of experimenters it is believed that the stoppage of the heart in chloroform narcosis is a phenomenon, not of paralysis as is usually believed, but of stimulation—stimulation of the cardiac inhibitory apparatus. Theoretically, cutting the pneumogastric nerves would obviate this; and atropia should exert a favorable influence.

Especially when combined with morphia has this drug seemed to fulfill such an indication. DASTRE (*Four. Amer. Med. Assoc.*, October 19, 1889), states that in the use of chloroform in dogs, as a rule, a large proportion die from the administration of the drug, being more susceptible to its influence than man; but that since the employment of atropia the death-rate in his laboratory experience has been reduced to *nil*. AUBERT (*Bull. de la Soc. de Biolog.*, 1883), recommends in human practice the hypodermic administration of 20 drops of the following:

2. R.	Morphinæ muriatis,	gr. iss.	
	Atropinæ sulphatis,	gr. ʒi	
	Aquæ destillatæ,	f. ʒiiss.	M.

AUBERT claims that it renders the administration of the chloroform more safe, brings on a quicker and easier narcosis, ensures a more rapid return to consciousness, and prevents, in a large measure, the unpleasant emesis.

The patient should, whenever convenient, be wholly undressed, and, invariably, everything tight about the chest or neck should be removed. If possible, let the patient be in the recumbent position, and on his back. Let the chest and neck be well exposed. Whatever form of apparatus be used (a piece of lint, a handkerchief or an inhaler), there is little or no risk with the first inhalations, and the patient may be instructed to draw full breaths. So soon as any effect is manifest, more caution must be observed. The respiratory movements should be carefully watched, and also the color of the cheeks, lips and eyes. The finger should be kept on the wrist-pulse; this is essential. If the patient struggle much, proceed with increased caution. (WARING.) The chloroform should not be allowed to touch the lips, or it may blister them. By not chloroforming a patient within two hours of a full meal, the annoyance of vomiting may be prevented. He should be narcotized before removal to the operating table or the sight of any preparations. He should be taken to bed again in a state of unconsciousness. *There should be no hurry*, because complete insensibility to pain and absence of involuntary movement are more safely obtained after the vapor has had time to benumb all the peripheral nerves. Dr. SNOW states that insensibility to pain cannot be obtained in a very rapid manner without a dangerous degree of narcotism of the nervous centres. The inhalation should occupy eight minutes altogether. The loud talking or violence of the intoxication stage is no cause of alarm; it

shows that the vapor has not produced a dangerous effect, and that a slight increase is necessary. At every operation the management of the chloroform should be committed to one competent person, whose duty it should be to attend to it, and to nothing else. The chloroform should be pure—that is, free from oily matter, muriatic acid and uncombined chlorine.

It may be administered in vapor, either by means of a folded handkerchief applied over the face and nose, or by means of inhalers, which are sold for this purpose; and *care should be taken that the patient breathes pure atmospheric air at the same time with the chloroform vapor*. There is reason to believe that cardiac syncope of a fatal character has been produced by inhaling air very strongly charged with chloroform. It is necessary therefore to administer it very gradually, *the handkerchief being held some little distance, an inch or more, away from the face, and the chloroform added only drop by drop*. Whatever inhaler is used, the one great principle to be insisted upon in the use of chloroform is the freedom of air access, and the gradual and moderate administration of the vapor. Most of the cases killed by chloroform anæsthetization have, so to speak, been drowned in chloroform vapor. Employed with such precautions, surgeons all over the South and West of this country, as a rule, prefer chloroform to any other drug for general anæsthetization. A small wire frame large enough to cover the nose and mouth, over which a bit of thin fabric is stretched, constitutes an excellent inhaler, the chloroform being poured upon it drop by drop at one point, the rest of the inhaler easily permitting a large ingress of pure air.

It has also been stated, on excellent authority, that air heavily charged with carbolic acid, as is so often the case in operations performed under the carbolic spray, decidedly increases the dangers of chloroform.

The tendency to *emesis*, which is a fertile source of danger to the patient, and an annoyance to the surgeon, can almost certainly be prevented by forbidding any food for four hours before the inhalation, and by administering a few minutes before it a few teaspoonfuls of brandy.

The following special conditions should be considered:

Age.—Children and aged persons bear chloroform well. Mr. JONATHAN HUTCHINSON teaches that the anæsthesia of chloroform is safer than that of ether in advanced life, as it is attended with less

cerebral excitement. But a few drops should be administered at a time in any case.

Sex.—Hysterical females are peculiarly susceptible to the action of chloroform.

Heart disease.—Most surgeons believe that fatty degeneration, marked cardiac debility, and the presence of large aneurisms, contraindicate the use of chloroform. This is denied by Prof. GROSS, who has never witnessed evil effects from these causes. Prof. OCCHINI, of Italy, recommends that such patients should inhale *ammonia* for five or ten minutes before commencing the chloroform. But a recent and able authority, Prof. GEORGE H. B. MACLEOD, F. R. S. E., of the University of Glasgow (*Brit. Med. Jour.* 1876), maintains that any such precaution is wholly needless.

Dr. VERGELEY, of Bordeaux, (*La France Médicale*, 1879,) has given recent testimony to the same effect. In spite of these authorities and the very positive statements they have made, the testimony of laboratory investigation into the effects of prolonged chloroform administration upon the tissues leaves little doubt but that fatty changes are to be apprehended—not so much perhaps as an immediate danger as of consequence later. So, too, it is the sense of the majority of American surgeons, that where actual cardiac disease, valvular or muscular, exists, chloroform by its inhibitory stimulation is decidedly unsafe, and that ether is a much less dangerous anæsthetic, tending to stimulate the cardiac action rather than to inhibit.

Habitual Drinkers.—A number of deaths have occurred among habitual drunkards under chloroform. Dr. UTERHART, of Berlin, recommends that in such cases half a grain of morphia be injected subcutaneously, ten or twenty minutes before the chloroform is administered. This materially shortens the period of delirium.

Nervous Shock is said by Prof. GOSSELIN to be a contra-indication. Of sixteen deaths from chloroform, he found twelve of them occurred in persons who had just received severe injuries, and had not yet completely recovered from the shock.

On account of its tendency to produce *emesis*, chloroform is contra-indicated in *ovariotomy* (PEASLEE) and similar operations on the abdomen, unless the precautions to prevent this result have been enforced. T. GAILLARD THOMAS, the eminent gynæcologist, (*Med. and Surg. Reporter*, April 20, 1889,) calls attention to this advantage of chloroform over ether, the latter inducing even greater disturbance than chloroform.

EMERGENCIES OF ANÆSTHETIZATION.

It has been shown by Prof. SCHIFF, of Geneva, that both ether and chloroform may be followed by paralysis of the vascular and respiratory systems; but whereas, in the employment of ether, the paralysis of the respiratory acts always comes first, and hence presents, in the cessation of breathing, a timely warning, in chloroform, on the other hand, the far more dangerous paralysis of the vascular system (*i. e.*, of the heart,) may be the first to appear, and thus present no warning and leave no time for precautionary measures.

In administering this latter anæsthetic, especial attention should be given to the *pulse*, the *respiration*, and the *eye* (conjunctiva and pupil).

The *pulse*, at first quick, and it may be weak, should, as soon as unconsciousness sets in, fall somewhat in frequency and gain in force. It should continue regular and strong throughout. Should it become quick and weak, or irregular, then the inhalation must be withheld, unless the irregularity is obviously due to the patient's struggles.

The *breathing* often affords an earlier sign of danger than the pulse. If the respiration becomes shallow, and gradually less frequent, the chloroform should be suspended for a time; should it cease, active measures must be resorted to, as will be described hereafter. What is called "stertorous" breathing, a noisy, catchy respiration, is nearly always a sign of deficient innervation of the respiratory apparatus, and hence the danger. A very similar kind of breathing, however, takes place in operations on the rectum and vagina, which is without danger. The true character of this form may generally be discriminated by noting that it does not occur until the rectum or vagina is manipulated, and is especially loud and noisy when the finger or an instrument is passed into either orifice with any force.

Within the last few years considerable discussion has been raised by the results published by the Hyderabad Commission upon the effects of chloroform. This Commission was appointed at the command of the Nizam of Hyderabad, several years since, and as a result of their investigations announced that chloroform kills by respiratory paralysis, and not by its action on the heart and vascular apparatus. This was so contrary to the accepted view and met with such criticism, that a second commission was appointed, the government of Hyderabad inviting the *London Lancet* to appoint one of the members, and appropriating \$5000.00 for his expenses.

The findings of this second commission were substantially the same as those of the first, T. LAUDER BUNTON, the eminent therapeutician, being the representative of the *Lancet* upon this second commission. The commission have published a series of rules based upon their work; in general recommending artificial respiration, respiratory stimulation, the inversion of the patient, use of morphia and alcohol before anæsthetization.

These statements of the Hyderabad Commission as to the manner of death in chloroform poisoning have awakened widespread criticism, many and as able observers, having repeatedly and as often as this commission seen death occur in the animals experimented upon by cardiac failure. Until further attempts to reconcile these results, it is impossible to hold strongly to one or other view.

The surest signs of safety and the earliest of danger are afforded by the *eye* of the patient, as exhibited in the condition of the pupil and the conjunctiva. So long as irritation of the conjunctiva causes reflex action, and is followed by winking, there is usually no danger. (RINGER.) The pupil is much contracted in the stage of insensibility, when no danger is to be apprehended; but on the approach of peril from dangerous narcosis, the pupil dilates. When on touching the conjunctiva reflex action is annulled, and the limbs when raised fall heavily, consciousness of pain is entirely absent.

Death from chloroform occurs sometimes by asphyxia, owing to closure of the glottis by the tongue falling back, or due to paralysis of the laryngeal muscles; or else by vomited matters passing into the larynx. In all cases the treatment must be prompt:

1. Stop the administration of the anæsthetic.
2. Lower the head below the level of the body.
3. Seize the tongue with the catch-forceps, and pull it forward so that its tip appears well between the teeth.
4. Admit fresh air freely to the patient by open windows, fanning, &c.
5. Commence at once artificial respiration.
6. Apply electricity freely to the heart and through the diaphragm if there be any evidence of heart failure.
7. Let an assistant rub each extremity briskly with a hot towel; dash cold water in the face; insert a lump of ice in the rectum.
8. As soon as the patient can swallow, stimulate with ammonia and brandy.

CERNE (*La Normandie Med.*, 1889, May,) has recommended the

hypodermatic injection of caffeine in cases of cessation of the heart's action in chloroform sleep, and SCHWARTZ (*Rev. Gen. de Clin. et de Therap.*, 1889) advises hypodermatic injection of ether and the inversion of the patient.

An expedient suggested by Dr. HEIBERG, of Norway, in chloroform narcosis, is to bring forward the under jaw *in toto*. When the rattling, incomplete respiration begins—that is to say, in all those cases in which the teeth are otherwise forced apart, and the tongue drawn out—he draws the under jaw forward by the following means: Standing preferably behind the reclining patient, the operator places both thumbs on the symphysis of the lower jaw, presses the second joint of the bent forefingers behind the posterior margin of the rami ascendentes of the under jaw, and thus holding the whole bone fast between the two hands, draws it forcibly forward (anatomically speaking). The most successful impulse is that which would be given if the intention were to lift the whole head and body by this grasp. By this proceeding, and as long as it is continued, the jaw is kept luxated forward. The obstacle to the respiration is removed, and in short, exactly the same result is obtained as if the tongue had been drawn forward and the mouth kept open by a gag.

As an antidote, *nitrite of amyl* has received considerable attention. The amyl should always be in the armamentarium of the medical man. It can be administered from a bottle, or five or six drops may be placed on a handkerchief, and held to the nose and mouth of the patient. An exceedingly convenient method of carrying the drug is by means of the nitrite of amyl bulbs made of glass. When required, one of the bulbs can be broken in a handkerchief or towel and its contents immediately inhaled.

Atropin, as a paraly sant of the cardiac inhibitory apparatus, is indicated where there is liability to death from arrest of the heart's action. But, as pointed out by Prof. E. A. SCHÄFER (*British Medical Journal*, October, 1880), it is necessary to give it immediately before the administration of the chloroform, *as a preventive*. The hypodermic injection of atropin *afterwards* is of little value.

What is called *Niciaton's* method of restoration has frequently proved all-sufficient in desperate cases. The patient is seized by the feet and suspended, head downwards: or the body is brought to the side of the table, and the trunk and head allowed to hang down. Artificial respiration is made by pressing alternately the sides and front of the chest, and by bringing the elbows to the sides, and from

there below the head. Several minutes may elapse before the respiration is restored, and it is well to hold the patient in this position from five to ten minutes, until all danger has passed.

Sylvester's method for producing artificial respiration is practiced as follows: The patient is placed upon his back, the head placed in a position to extend the air-passages as much as possible, that is, the head thrown back somewhat. Then the operator, kneeling behind the head, grasps the arms at the elbows and draws them around on a plane parallel with the body and up over the head, so as to expand the thoracic walls, giving them several seconds' interval of time to accomplish the journey. Then, the lungs presumably full of air, the arms are returned to their former position alongside the chest, and the lower part of the thorax steadily, quickly and strongly pressed in so as to expel the air. These procedures should be repeated fifteen or sixteen times a minute, and persisted in until failure is certain.

Galvanization is also an efficient restorative. The current should be passed along the pneumogastric nerve or through the diaphragm. In the armamentarium of every one undertaking the administration of the chloroform vapor there should be a galvanic battery, as well as the tongue-forceps and depressor, the gag and the sponge-carrier. In all cases of cardiac failure galvanization should be at once practised, one pole being placed over the upper part of the epigastrium, the other just below the ear over the pneumogastric nerve.

It has been proposed recently that in case of cardiac cessation, puncture of the right ventricle and withdrawal of a portion of the blood therein be practiced. The abstraction of blood relieves the engaged ventricle, and the puncture stimulates the cardiac muscle to contraction. However, in practice, this rather heroic measure is to be deferred to late in the case, when other measures have failed, and then it is generally too late for it as well. The editor recalls a single successful instance of recourse to this measure in cardiac failure in his personal recollection.

ETHER.

This anæsthetic is usually preferred on account of its safety. The rules for administering it, and for treating its poisonous effects, are the same as those given under chloroform, except that in case of ether, the respiratory system being usually the one failing, respiratory stimulants and forced respiration are to be energetically em-

ployed in case of necessity. As, when mixed with air, its vapor is inflammable, care should be exercised in using it at night, or when employing the actual cautery.

In giving ether, a newspaper cone lined with a towel is a convenient apparatus. The cone should be short, so as not to be in the way, and thick, so as not easily to be saturated with the fluid, and thus lose its shape. The cone should be held a little distance from the patient's nostrils when he takes the first two or three inspirations, so that the ether may be freely diluted with air. As soon as he commences to struggle, the cone should be closely applied. His countenance should be watched and his breathing attended to. The moment his face becomes injected or dusky, the ether should be removed, and the tongue drawn well forward. If the symptoms do not readily disappear, the measures recommended under asphyxia from chloroform must be resorted to (page 24). As one of the most powerful respiratory stimulants, strychnine should be administered hypodermically, and ammonia may be found of use. The elevation of the lower part of the body above the shoulders and head is the most important portion of the treatment in respiratory failure.

Dr. O. H. ALLIS, of Philadelphia, maintains that the most striking defects of ether, to wit, (*a*) its proneness to irritate the air-passages, (*b*) its comparative feebleness as an anæsthetic agent, (*c*) its long and vexatious stage of excitement, are owing entirely to a defective method of administering it. What ether requires is an opportunity to evaporate, and, under favorable circumstances, when there is a thin stratum of it, its disappearance is almost instantaneous. Any apparatus or vehicle for the administration of ether that holds it in any quantity and retains it in the fluid state is not well adapted for its use, while any contrivance that will favor the rapid deliverance of the vapor of ether must, *cæteris paribus*, be more effective.

To reach this point, he has contrived a wire frame-work for keeping many folds of a bandage at a slight distance from each other, and yet having the whole in a compact form that will readily adjust itself to the face. The sides are inclosed, but the ends are left open—the one for the patient's face, the other for the entrance of air and the ready supply of ether.

He has found it very effective. He usually produces complete anæsthesia in females in seven minutes, and with about two ounces of ether. Persons seldom object to taking it, and the stage of ex-

citement is no more *excessive, prolonged or frequent* than with chloroform.

He adheres strictly to the following plan: The patient being freed from all restraint as to clothing, he places the apparatus over the face and adds *a few drops of ether*—hardly enough to give a strong odor of ether. In a few seconds he adds a few more drops, taking care not to give it in too concentrated a form at first. In a few minutes the patient takes deep respirations, and then he adds it more constantly, *not too much to be offensive or objectionable to the patient, and not too little to be efficacious.*

The sick stomach and headache which often follow the use of ether may generally be prevented by administering, shortly before the inhalation, a few drachms of brandy, or, what is said to be equally if not more efficacious, a teaspoonful or two of *bromide of potassium*, half an hour before, as recommended by Dr. A. J. STONE, of Boston.

On the *relative value* of chloroform and ether, much difference of opinion prevails. Prof. SCHIFF, of Geneva, has expressed himself to the effect that chloroform should be banished from practice as an anæsthetic agent, except in cases in which extraordinary resistance to the effect of ether shows itself, in which instances it might be allowable to mix a little chloroform with it, in order to produce the commencement of anæsthesia, which should afterwards be continued with pure ether.

An excellent authority, Professor FRANK H. HAMILTON, of New York, says: "In nearly all my surgical operations I prefer ether to chloroform, as being equally efficient and more safe; but in the reduction of dislocations we need complete muscular paralysis, and this is much more quickly and certainly attained by chloroform than by ether, and I am, therefore, in the habit of using chloroform in the reduction of dislocations."

In cases where an immediate effect is required, as in puerperal eclampsia, chloroform is to be preferred. It is generally believed that if chloroform is sufficiently diluted with air, as can be done by letting it fall drop by drop on a handkerchief spread over the mouth, as recommended by Sir JAMES Y. SIMPSON, it is quite as safe as ether.

Dr. TRIPIER insists (*Revue Scientifique*, Nov. 9th, 1876,) that chloroform is, for children, a much safer anæsthetic than ether. Children, he says, under ether seem to "forget to breathe," and die

in a manner not explained by asphyxia or cardiac paralysis; these symptoms he has never seen when chloroform is used in them.

The differences of opinion as to the relative value of these two prominent anæsthetics probably rest upon several points—ignorance as to the proper use of one or the other, and possibly certain climatic differences in the action of the substances. In the hands of the untrained general practitioner undoubtedly chloroform is the more dangerous, but where it has been used habitually it is scarcely more dangerous, and very much more efficacious than ether.

ETHIDENE DICHLORIDE.

Some favorable reports on this anæsthetic have appeared. It has greater solubility and volatility than chloroform, acts more rapidly, and the recovery from it is also more rapid. As it has also a more stimulant action on the heart and is rapidly eliminated from the system, it would appear to be a safer agent. The after-effects are usually not unpleasant, vomiting and headache being exceptional. About half an ounce is required to produce anæsthesia in the adult. Some cases of its use are given by J. R. MACPHAIL. (*Half-Yearly Compendium of Medical Science*, Jan., 1880.)

ETHYL BROMIDE.

The ethyl bromide has been tried by M. RABUTEAU on the lower animals, and by Dr. LAURENCE TURNBULL, of Philadelphia, as a local and general anæsthetic. (*Artificial Anæsthesia*, 1879.) The latter holds that it occupies an intermediate position between chloroform and ether, and that it is free from irritating effects upon the lungs and heart. It is a colorless liquid of an agreeable odor and flavor, not caustic, and may be taken internally in doses of half a drachm, soothing pain and not disturbing the appetite. It is sparingly soluble in water, but completely so in alcohol and ether.

Care must be exercised that *ethylene bromide* is not dispensed for *ethyl bromide*, the former being depressant to as great a degree, as if not greater, than chloroform. A number of cases in which death occurred from supposed ethyl bromide have been upon investigation found due to the fact that ethylene bromide was used.

ESCHRICHT (*Prov. Med. Jour.*, November, 1889,) regards its use as void of danger. Anæsthesia is rapidly accomplished, and is usually unaccompanied by the unpleasant after-effects of chloroform. He is careful to use only Merck's preparation, and to keep it in a

dark colored bottle to prevent the action of light upon it. DIEHL, of Pittsburgh, (*Pittsburgh Med. Rev.*, 1889,) also regards it highly because of its rapid action and the rapid disappearance of its symptoms, sometimes within a few minutes. It is said that sometimes there is absolute loss of sensibility to pain, with full mental control, when under the influence of the drug. The author cautions that only the *pure* drug is to be used. When given by inhalation it may be administered by an ordinary inhaler, one or two drachms being usually poured upon the inhaler. It is particularly efficient in short operations, a small amount being usually quite sufficient.

HAFFTER (*Corr. Blatt f. Schweiz. Aerzte*, March, 1890,) believes it to be an efficient and safe anæsthetic for minor surgical purposes. He insists on the use of a pure preparation, as Merck's; its purity may be estimated, according to the writer, by pouring a small amount upon the hand, when it should evaporate rapidly and not leave any residue, by the absence of a reaction with nitrate of silver after having been shaken up with water and filtered, and by the failure of a brown color on the addition of strong sulphuric acid. The best method of administration is to pour the whole quantity to be used (1 to 5 drachms) upon an impenetrable mask, placed close to the patient's mouth and nose. The anæsthesia comes on quickly, and in about one quarter or half a minute after the first inhalation, the operation may be begun. It lasts but a short while, and is suitable only to brief operations, as opening abscesses.

HYPNOTISM.

For many years it has been known that certain persons were capable of entering into a condition of unconsciousness under the influence of the will of another, to such a degree that slight operations might be performed upon them without the sense of pain. Instances of such nature are occasionally met under the hands of the regular anæsthetizer, the patients falling upon suggestions of the former, and before the administration of the least dose of an anæsthetic, into a comatose condition, from which the suggestion of the operator is sufficient to recall them. The popular aversion to hypnotism or Mesmerism, as it is commonly called, the inaptness of many operators for urging the induction of the hypnotic state, and the rarity of persons open to hypnotic suggestion, all militate against its common employment. It is, however, to be mentioned, in this connection at least, as one of the curiosities of anæsthetization.

Popularly it is looked upon as the production of an extraordinary power upon the part of the hypnotizer or Mesmerist. This is, however, probably an error, the real agency being in the person hypnotized, in the ability of this person to assume such a so-called negative mental state, a state of mental relaxation or mental receptivity, as to assume the volitions expressed by the hypnotizer as his or her own (*i. e.*, the hypnotized). Under the instructions of the hypnotizer all external impressions are to be temporarily forgotten, the patient is to fail to think, so to speak, the attention being usually retained by an intense and close fixation of the eyes upon some bright object, a coin, or often the eyes of the operator. After some minutes' fixation of attention and negative thought upon the part of the patient, suggestions from the operator are usually adopted as the patient's. The operator suggests sleep, accompanying the suggestion by gently closing the eyes and stroking the face; the patient sleeps. A suggestion of cold causes a shiver; of pain, the patient winces. So when the operator suggests the absence of pain, none is felt. For example, the case mentioned by WOOD (*N. Y. Med. Record*, January 4, 1890,) may be referred to. A man was to be operated upon for osteomyelitis of the upper third of the humerus. Several days before the operation the man was hypnotized a number of times, and then each day; on the day of the operation he was easily under control. He was hypnotized on his own bed, carried into the operating room, the operation done with the usual antiseptic precautions and prolonged by the usual amount of care, and the wound dressed. He was returned to his bed shortly before 10 o'clock, and told that at 12 o'clock he could sit up and have something to eat. Undisturbed by the nurses, he slept until the appointed hour, stretched out his well arm and said: "Doctor said that I could have something to eat at 12 o'clock." In recent literature similar examples are numerous, especially in the French and Belgian journals.

METHYLENE BICHLORIDE.

Mr. PHILIP MIALl, surgeon to the Bradford Infirmary, England, who has employed this anæsthetic in a large number of cases, states that insensibility in adults is usually produced in about two minutes. One dose of a drachm is usually sufficient to produce anæsthesia. Vomiting occurs in but a small number of cases. The respiration is usually quickened, the pulse lessened in frequency. In its administration, it is important to exclude rather than to admit air, and for

this purpose a close-fitting inhaler should be chosen. The apparatus should be well applied to the face. (*Half-Yearly Compendium of Medical Science*, July, 1870).

On account of the immunity from sickness of the stomach it gives, this anæsthetic is much used in ovariectomy; and on account of the rapidity with which persons can be brought under its influence, it is preferred in some English ophthalmic institutions where many operations are performed.

Mr. J. T. CLEVER, of England, states that he has not found its effects so uniform as chloroform, and attributes this to the compound nature of the body, as indicated by its variable boiling point.

The bichloride has been used both alone and in combination quite extensively by Dr. C. BELL TAYLOR, of London, who gives a generally favorable report upon it. (*Medical Press and Circular*, January, 1874.) His opinion is that it is not quite so convenient as chloroform, on account of the inhaler employed, but it is far more rapid in its effect, and when there are a great number of patients to be operated upon, and time is of importance, this is the anæsthetic which will always be preferred. The bichloride, he states, is best administered with an inhaler that almost excludes the air, though a little may be admitted at the commencement; two or three drachms should be poured on, and the agent be pushed when the patient shows signs of going off; when fully unconscious remove the inhaler, and do not give another inspiration unless the patient shows signs of returning sensibility. Patients succumb very quickly to the bichloride, and recover as quickly, hence it is a most convenient anæsthetic, and perhaps safer than chloroform; it is, however, like chloroform, a lethal agent, and requires careful watching. Attempts have been made to combine it with ether, and the result has been the discovery of a definite compound called *ether metyhylene*, which is a very convenient and very safe anæsthetic administered in the same way as the bichloride.

The strongest advocate of this anæsthetic has been Mr. T. SPENCER WELLS, F. R. C. S., whose opinion, as expressed before a late (1877) meeting of the British Medical Association, is so decided that it merits quotation in his own words:

"In 1872 I made known my opinion that all the advantages of complete anæsthesia, with fewer drawbacks, could be obtained by the use of bichloride of methylene or chloromethyl than by any other known anæsthetic. That was the result of an experience of

five years and of three hundred and fifty serious operations. The experience of the five succeeding years up to the present time, with more than six hundred additional cases of ovariectomy, and many other cases of surgical operations, has fully confirmed me in this belief. Given properly diluted with air, the vapor of chloromethyl has, in my experience of ten years, with more than one thousand operations of a nature unusually severe as tests of an anæsthetic, proved to be, without a single exception, applicable to every patient, perfectly certain to produce complete anæsthesia, relieving the surgeon from all alarm or even anxiety, and its use has never been followed by any dangerous symptom which could be fairly attributed to it. I wish I could speak as confidently of the chemical composition of the fluid sold as bichloride of methylene as I can of its anæsthetic properties. But whatever may be its chemical composition, whether it is or is not chloroform mixed with some spirit or ether, or whether it is really bichloride of methylene, I am still content with the effects of the liquid sold under that name, when properly administered. The only deaths ever attributed to it were, I believe, rather due to asphyxia. No air was given with the methylene. By Junker's apparatus, air charged with methylene vapor is given, not the vapor itself, and so employed it has always been in my experience both efficient and safe."

Investigations by VILLEJEAN and REGNAULD have shown that this substance is nothing but a mixture of four parts of chloroform and one part of methyl alcohol. It is unalterable in air and light.

NITROUS OXIDE.

This is a safe and valuable anæsthetic in many cases. When successfully given, the patient appears to fall asleep without any delirium or excitement; but if the operation be one leaving much pain behind it, the patient sometimes will have a dream more or less connected with it, and then wake up rapidly and completely. It is by far the best anæsthetic for many short operations, such as the extraction of teeth, opening abscesses or boils. It answers very well in operating for strabismus. Removal of the eyeball has been performed for a lady, who said she had no consciousness of the operation. It is well suited for examining hysterical cases, wrenching stiff joints, and reducing luxations of recent date. It is not suitable for cases where it is necessary to keep the patient quiet more than three or four minutes; but if the patient be allowed to recover con-

sciousness after one inhalation before another is commenced, the anæsthesia may be kept up tolerably well for half an hour.

In administering nitrous oxide, a plentiful supply of gas is essential to success. There is no fear of patients inhaling too much at first. They should be told to breathe deeply and slowly. The administrator should always use a double-valve inhaler, attached by a hose of large calibre directly to the reservoir of gas, so that a quite large column may pass directly to the patient. In this way the respiration is free, whereas if the column of gas is small, the respiration is more or less labored. An inhaler with a mouth-piece in the centre to pass between the teeth, leaves the mouth open for the operation when anæsthesia is complete.

Anæsthesia is supposed to be produced with it by shutting off the supply of oxygen, (*Wood and Cerna, N. Y. Med. Record, 1890,*) in other words by the production of a mild asphyxia. The patient passes quickly into a perfect state of anæsthesia, which is always plainly indicated. The condition is of shorter duration than that produced by chloroform or ether. The functions of the body are slightly exalted, and respiration fully supported. After the lapse of from two to five minutes, the patient is in as perfectly a normal condition as before inhaling it.

Of the *risks of its administration*, it is evident, from the many thousands of cases in which the gas has been given, and the extreme rarity of a fatal accident from its use, that, in the hands of a skilled and careful operator, no great risk attends the employment of this anæsthetic; but it is also obvious that, to a patient with a feeble, fat heart, the distension of the right cavities which accompanies the disappearance of the radial pulse, and the general lividity of the features, must be attended with some degree of risk, and the danger must be increased when, the muscles of the trunk and limbs being convulsed, the pressure of the contracting muscles upon the veins drives the blood forcibly towards the right cavities of the heart, and so adds to their distension.

Prof. PAUL BERT, of Paris, discovered, in 1879, the use of mixed nitrous oxide and oxygen, *under tension* or compression, so that the patient respire, with the gas, his ordinary supply of oxygen. A special chamber is required, and a pressure of two atmospheres is used. The value of this anæsthetic mixture of about eighty-five parts of nitrous oxide and fifteen of oxygen, promises to be very useful and practical. With this mixture, employed in compressed

air, the patient does not get blue in the face, and the natural complexion, pulse and breathing seem to be preserved. Moreover, it is not preceded by the period of agitation which often proves so tedious and troublesome, and is not followed by the stage of reaction which often upsets a patient for several consecutive hours.

PENTAL.

This is a derivative of the amylene radical, so called because it contains five carbon atoms. It was discovered by MERING. It resembles ether in its volatility and inflammability, and is used in the same way that chloroform is used. The average amount required to produce anæsthesia is three or four drachms, the anæsthesia developing in from three to four minutes. The narcosis is not profound, being available only for minor surgery; and in many cases the anæsthesia is obtained without the loss of consciousness. It does not produce any unpleasant effects, as headache or vomiting, disturbances of the respiration or circulation. There is no stage of excitement. (*Med. News*, 1891.)

ANÆSTHETIC COMBINATIONS.

M. SAUER, OF BERLIN.

This surgeon dentist recommends the following compound as free from the dangers attendant on the use of either chloroform or ether alone:

3. R.	Chloroform (liquid),	6 grammes.
	Atmospheric air,	$\frac{3}{4}$ kilogramme.
	Protoxide of nitrogen,	16 kilogrammes.

GUY'S HOSPITAL, LONDON.

4. R.	Alcoholis,	f. $\frac{3}{4}$ j.	M.
	Chloroformi,	f. $\frac{3}{4}$ ij.	
	Ætheris sulphurici,	f. $\frac{3}{4}$ iij.	

This is preferred where chloroform is badly taken; and the safest administration is said to be to put the patient under the influence of chloroform, and then to keep him anæsthetized by the use of this mixture. It should be well shaken. In this country it has been extensively tried, with satisfaction. (*Medical and Surgical Reporter*, October, 1872.)

It is the famous A. C. E. mixture, which in the last few years has been so heartily and honestly condemned by the profession, a great

many deaths having been caused by its use. The mixture being particularly unstable, and the proportions of the elements prone to variation during each use, it is obvious why it should be dangerous and to be condemned. A similar condemnation is due most of these anæsthetic mixtures.

DR. W. L. ATLEE, OF PHILADELPHIA.

5.	R.	Chloroformi,	f. $\frac{3}{4}$ j.	
		Ætheris sulphurici,	f. $\frac{3}{4}$ ij.	M.

The objection to the immediate mixture of the two anæsthetics, such as this, is that they do not mingle, and the patient is apt to take the ether first and then be overcome by the heavier chloroform. It is important, therefore, that the bottle be well shaken each time before the contents are thrown upon the inhaler.

Dr. E. SANSOM prefers a mixture of one part of chloroform to either one or two of absolute alcohol. Dr. BENJAMIN W. RICHARDSON combines ether with bichloride of methylene.

Dr. W. N. SMART, of Michigan, has proposed the use of a combination of chloroform and nitrite of amyl (98 parts of the former to 2 of the latter), these drugs exerting a somewhat antagonistic effect. Under the name *chloramyl* a somewhat similar mixture is used occasionally.

DR. WACHSMUTH, OF BERLIN.

This writer (*Allg. Wiener Med. Zeitung*, November 15, 1878), recommends:

6.	R.	Chloroformi,	5 parts.	
		Olei terebinthinæ,	1 part.	M.

He claims that the chloroform is more rapidly absorbed, and its danger much lessened.

LOCAL ANÆSTHETICS.

ACETIC ACID.

The following, mixed in a thin flask, will produce vapor which induces local anæsthesia in five minutes:

7.	R.	Glacial acetic acid,	āā	partes equales.
		Chloroform,		

ALCOHOL.

Dr. HORVATH, of Kieff, has proposed a method of employing alcohol for producing local anæsthesia. It is well known that if the hand be immersed for a short time in ice water severe pain is caused. Dr. HORVATH found that no such pain was produced when the hand was immersed in cold alcohol, not even when the temperature of the alcohol was as low as 5° C. Glycerine was found to possess a similar property. Ether caused pain, and quicksilver more acute pain still, causing the speedy withdrawal of the finger when plunged into this liquid at a temperature of 3° C. It was next ascertained that when the finger was held for quite a long time in alcohol having a temperature of 5° C. no pain was experienced. Moreover, although the faintest touch was distinctly perceived in his finger, no pain was experienced from sharp pricks. The application of cold alcohol has the effect of depriving the part of the special sensibility to pain, without however impairing the delicacy of the general tactile sensation, which, as is well known, resides in the superficial integument.

CARBOLIC ACID.

In the application of the actual cautery and such procedures, the pain may be avoided by the application of carbolic acid. This local anæsthetic is not used with near the frequency which its efficacy deserves.

Pure carbolic acid should be applied to the parts to be cauterized, which are then covered with a light compress; after a short time, before the anæsthetic effect has passed off, apply the cautery. There will be a complete absence of pain. It is immaterial whether the acid be liquid or crystallized; in the former case it is to be applied with a brush, in the latter it extends over the parts as it liquefies.

Dr. J. H. BELL prefers to soak the part, when practicable, in a three per cent. solution of the acid for fifteen minutes, and then to draw a brush dipped in the pure acid along the line of the incision. (*American Journal of the Medical Sciences*, Oct., 1870.)

Dr. ANDREW H. SMITH, of New York, in illustration of this anæsthetic property, relates that he painted on his forehead a spot an inch in diameter with an eighty-five per cent. solution of the acid. For a minute it caused a slight burning, then the skin became quite numb, whitened and shriveled; at this point he made an incision half an inch long without even feeling the knife, the wound

from which afterwards healed as usual. Three hours afterwards he thrust, without pain, a needle into the skin; and next he applied a blister to the carbolized skin, without causing pain or vesication. He had used this application in opening whitlows, and found the pain of the operation greatly less than ordinary.

Dr. L. H. A. NICKERSON, of Quincy, Ill., has presented strong evidence that it is the *cresol* and not the *phenol* in carbolic acid which possesses the anæsthetic power. (*American Medical Bi-weekly*, March 16th, 1878). He has found the following an admirable mixture to allay the acute pain after the application of caustics, in burns and scalds, active gonorrhœa, etc.:

8. R.	Acidi carbolici (Calvert's No. 4),	gtt. ij.	
	Aquæ calcis,	f. ʒj.	M.
For local use.			

The acid must be the impure form, containing cresol, as the preparation known as No. 4 of Calvert's. The crystallized acid or phenol does not produce the same results.

Dr. BENJAMIN WARD RICHARDSON, (*Lond. Med. Recorder*, 1890) who some twenty-five years ago proposed a spray of ether for local anæsthetization, states that a solution of five grains of carbolic acid in five ounces of ether constitutes an excellent local anæsthetic—the anæsthesia appearing before the skin is hardened. The anæsthesia can be continued and rendered profound, where deep dissection is demanded, by continuing the spray. There is however some danger of carbolic acid poisoning where a large wound is produced or the operation too prolonged. The wound, too, is apt to heal slowly and by granulation. RICHARDSON recommends the combination in foul and painful cancers—the anæsthesia being of longer duration than by the ordinary local measures.

CARBON BISULPHIDE.

This substance has been employed by Dr. S. R. NISSLEY, of Ohio. His mode of application is this: Place a pledget of cotton in a wide-mouthed vial, saturate it well with the bisulphide, and apply it to the painful part, and as soon as the patient complains of a smarting sensation, change the position of the bottle, carefully following the course of the principal nerve that seems to be distributed on the part.

In the *Gaz. Med. de l'Algerie*, Dr. CHARLES BERNARD, relates

several cases in which sulphide of carbon was employed to produce local anæsthesia. In one case six grammes, poured drop by drop on the part, and made to evaporate quickly, acted efficiently; and in another case, ten grammes applied by a spray apparatus enabled the operator to make six deep incisions into a large carbuncle without inflicting pain.

CARBONIC ACID GAS.

As early as 1835, Dr. DEWEES, of Philadelphia, reported the employment of carbonic acid gas as a local anæsthetic in carcinoma uteri.

Dr. THEODORE A. DEMMÉ, of Philadelphia, has reported a number of cases in the *Medical and Surgical Reporter*, February 18, 1871, in which the "gas has proven to be of inestimable value, not only in relieving agony and suffering, but even in saving life, when all other means would probably have failed." These cases were of painful labor with threatening exhaustion, and rigid, unyielding and irritable uteri.

The materials used for generating the gas are the bicarbonate of soda and tartaric acid.

A common pint bottle, having attached an elastic tube about three feet in length, passing through the cork, should be provided. Into this pour three or four ounces of water, then introduce half an ounce of bicarbonate of soda, and lastly the same quantity of tartaric acid in a granular or crystalline form. The free extremity of the tube may then be applied to the sensitive part, so that the gas is thrown upon it in a stream. Some precautions are required. The patient's head should be elevated, and abundance of fresh air furnished. In obstetric cases the child, as soon as born, should be removed from the bed.

CHLORAL HYDRATE.

This drug is an efficient paralyzant of the sensory nerves. In cases of extensive burns of the first and second degrees, Dr. S. S. RIDDELL, of Wisconsin, reports almost immediate relief from

9. **R.** Chloral hydrate,
Carron oil,
Use locally.

3 iij.
f. 3 vj. M.

The first application causes a stinging sensation, rapidly followed

The toxic symptoms are sometimes very alarming, and indeed threaten a fatal termination, but among the many reports of poisoning from the drug very few fatal instances have occurred. These effects are often mental, leading to violent maniacal or delirious symptoms, or convulsions of a tonic or clonic character may occur. The most frequent condition occurring from cocaine poisoning is, however, seen in the rapid production of a small, weak, quick pulse, cold sweating, and sometimes unconsciousness and a condition of collapse, demanding instant treatment with stimulants and heat and friction.

GLUCK has found (*N. Y. Med. Record*, 1890,) that when combined with phenol the alkaloid is quite as effective as when alone, if not more so, and is without deleterious effects. He recommends this formula:

12. R.	Phenol,	gtt. ij	
	Aquæ destillatæ,	f 3j	
	Fiat solutio, et adde,		
	Cocainæ hydrochloratis,	gr. x.	M.

He believes that the phenol in this combination coagulates the albumen in the structures in the neighborhood of the injection, and thus the cocaine is prevented from extending into the adjacent good tissues and being absorbed.

RECLUS (*Four. Am. Med. Assoc.*, 1890,) up to 1889 has found records of but four fatal cases of cocaine poisoning, and has used it hypodermically or endermically over 700 times without any accident. He cautions that the drug should be injected directly into the skin, not into the subcutaneous tissue. In fact, rather serious consequences have appeared in the form of local tumefactions when the cocaine has been thrown into cellular and loose tissues. Where the skin is thick, or there is thickening from inflammation, several injections may be made at different depths.

When toxic symptoms appear Dr. S. MITCHELL (*N. Y. Med. Record*, 1890,) is in the habit of using strong coffee, either cold or hot, with very satisfactory results.

ETHER.

The local application of ether spray was proposed by Dr. BENJ. W. RICHARDSON, and has at times been popular. The fluid should be rectified, perfectly neutral, sulphuric ether, and held at a distance of two inches from the part to be affected. Dr. LETAMENDI, in the

Archives de Physiologie, November, 1875, adds the following directions:

After about two minutes the part of the skin on which the spray has fallen becomes red, and is the seat of a disagreeable sensation of cold; there is no sensation of burning in the part.

If, at this moment, an incision, eight or ten millimetres long, is made with a convex bistoury in the centre of the reddened part, not being carried deeper than the papillary layer of the cutis, immediately the incision is made, there is suddenly produced an anæmic zone, which enlarges outward from the point incised, as a circle goes on enlarging on the surface of water into which a pebble has been dropped.

If the spray is again directed for a few seconds on the part which has thus become anæmic, the region becomes perfectly bloodless and completely anæsthetic. The tissues when cut are like frozen fat, and have lost their elasticity. Around the white circle there is a zone in which the anæmia is not absolute. The spray directed on this zone speedily makes the anæmia and consequent anæsthesia complete. The anæsthesia can thus be carried around or along a limb.

Another plan of using ether is the following:

13. R. Pulveris camphoræ,
Etheris sulphurici,

℥iv.
f. ℥j. Dissolve.

By rubbing this mixture on the skin for about a minute, a transient, superficial loss of sensibility is obtained, which renders slight operations almost painless.

Dr. LANENSTEIN, of Hamburg, writes (*Centralblatt für Chirurgie*, July, 1880), that local etherization is now unduly neglected. At the Hamburg Hospital it is regularly employed in opening abscesses, making incisions in phlegmon, &c., counter-openings, tenotomy, operations on the bursæ, the removal of small foreign bodies, and the extirpation of small cutaneous and subcutaneous tumors. It is also employed in phimosis, but as a general rule it should be avoided in operations about the genitals, as the ether causes so much pain, and the intervention of a thick layer of moistened wadding is required. The spray is much to be recommended in the removal of ingrowing toe-nail, and patches of lupus may be scooped out under its action. Affections of the nose or lips should be exempted, as the inspiration of the concentrated ether may prove dangerous, as it may

also in operations on the gums, which are excessively sensitive to its action. The cheeks, forehead, and aural region may be acted on, protecting the eyes with moistened wadding. The great reduction of temperature which is produced does not interfere with the healing of the wounds. Great care is required not to bring the ether near light of any kind, for fear of explosion; but this inflammability does not contra-indicate its employment with the actual or galvanic cautery—the parts being first dried with wadding. The spray is very useful during transplantation, especially in private practice, when the patient has himself to supply the grafts. Under the spray they can be removed without any pain, and owing to the hardness of the skin produced, this can be more easily effected. “To sum up my experience with ether spray, it is well suited for short and superficial operations, of small applicability to extensive operations, and is unsuited for those on the nose, lips, scrotum and mucous membranes.”

THE ESMARCH BANDAGE.

The use of the *Esmarch Bandage* has been found by M. CHAUVEL, surgeon, to bring about a numbing of sensation, and has been applied by him as a local anæsthetic. Diminution of sensibility was observed in each individual, not appearing immediately, but in five to twenty minutes. Insensibility appeared more quickly in the upper than in the lower extremities, its intensity depending on the tightness of the application; it first appeared in the peripheral portion of the trunk, and gradually spread to the upper regions. Insensibility to painful impression was first noticed, but whether this extended beneath the surface was not ascertained.

In two operations for ingrowing toe-nail with the use of elastic compression, very little complaint was made by the patient. In a case of ischiatic trouble the actual cautery was used after compression; anæsthesia, however, was incomplete. It is evident that elastic compression would fail in bringing about complete anæsthesia unless the ligature was placed so near the central portion of the limb as to cause other and inconvenient results. The conclusion is that, as an anæsthetic, compression cannot exclude chloroform or ether.

ETHYL CHLORIDE.

GRANDCLÉMENT (*Lyon Médical*, 1891,) mentions favorably a spray with ethyl chloride among a number of measures to be employed

for producing a local anæsthesia. A small quantity of the substance is put in a glass tube, and the end of the tube drawn out to a capillary point and sealed in a flame. (The bulb portion containing the ethyl chloride should be kept cool by some special means, as cool, moist cloths or some other similar measure.) When it is desired to use the apparatus, the end of the capillary tube is broken and the bulb held in the hand. The ethyl chloride vaporizes at 50° F., and therefore the warmth of the hand is sufficient to cause a fine spray when the end of the tube is broken off. In a short time the part sprayed becomes blanched, and an anæsthesia is produced of sufficient degree to perform minor operations.

ICE.

The application of ice to a part lessens its sensibility. A still greater degree of cold is obtained by *Arnot's freezing mixture*.

- | | | |
|--|-------------------------|-------|
| 14. R. | Pulverized ice, | 4 oz. |
| | Pulverized common salt, | 2 oz. |
| Mix quickly and thoroughly with a knife. | | |

This mixture is placed in a thin gauze netting, and laid upon the part to be benumbed. The netting should occasionally be raised to watch and equalize the remedy. Ordinarily from five minutes to fifteen minutes will be required to produce the desired anæsthetic effect. The application is not without risk, as the part, if not carefully watched, may be frost-bitten.

IODOFORM.

This has been used with success as a local anæsthetic, and obtunds the sense of pain. It has, however, such a penetrating, disagreeable odor that it has not become popular. It is peculiarly adapted to allay the pain of an exposed dental pulp, and is used commonly mixed into a paste with oil of cloves to ease the pain of a toothache.

MENTHOL.

This crystalline product of the Japanese oil of peppermint is an efficient local anæsthetic, both for the relief of acute pain and also for producing temporary loss of sensibility in a part about to undergo a slight operation.

The following formula is recommended for spraying upon a surface which it is desired to render anæsthetic, the anæsthesia lasting

for a few minutes, and sufficiently complete for opening abscesses or fistulæ, or removing superficial growths. (*Medical News*, 1890).

15. R.	Chloroform,	10 parts	
	Sulphuric ether,	15 parts	
	Menthol,	1 part.	M.

METHYL BLUE.

PIETROWSKI (*Med. News*, 1891,) states that methyl blue is possessed of marked anæsthetic properties. This was claimed for it some time since by EHRLICH as well. The drug has been administered by PIETROWSKI, both by hypodermic injection and by the mouth, to a number of cases, always with favorable results. The urine in these cases always became first green, then blue. When administered hypodermically there is some tendency to inflammatory reaction about the point of injection.

MORPHIA.

The sulphate of morphia has been used hypodermically before surgical operations, to bring about local anæsthesia. Dr. SPESSEA recommends the following:

16. R.	Morphiæ sulphatis,	gr. j	
	Aquæ destillatæ,	f. 3j.	M.
For hypodermic use.			

POTASSIUM BROMIDE.

It is stated by Dr. MARTIN F. COOMES, in the *Louisville Medical News*, 1876, that a saturated solution of bromide of potassium applied to a muscle, or injected into its vessels, will cause paralysis. When first applied to a mucous membrane it is irritant, and then anæsthetic. A wash or gargle of grs. xv-xx to aquæ f. 3j will often be found very serviceable to produce temporary local anæsthesia of the mouth, fauces, urethra, or pharynx.

RHIGOLENE.

This substance, a product of the distillation of petroleum, and the lightest liquid known, was suggested by Dr. HENRY J. BIGELOW, of Boston, for freezing the skin by use in a spray-producer. This it will do in from five to ten seconds. It is serviceable in opening abscesses and felons, in removing small tumors, in amputations of the fingers and toes, and similar minor operations. It is very inflamma-

ble, however, and if the application is at all protracted discoloration of the surface and desquamation of the cuticle are liable to follow.

SAPONIN.

This is an amorphous white powder, soluble in water, obtained from the *saponaria officinalis* and other plants. It is stated by Dr. KOHLER (*London Medical Record*, February, 1874,) to bring about, applied in a concentrated solution, paralysis of both motor and sensory nerve filaments. Later experiments have shown it to be unmanageable and dangerous.

FARADIC ANÆSTHESIA.

The benumbing effect of the faradic current on the nerves has been utilized for the production of local anæsthesia. For opening abscesses a strong faradic current should be directed through the parts as the incision is made. The relief thus afforded is slight, but is positive. (BEARD.)

Faradic anæsthesia has been chiefly used in the extraction of teeth, where it is certainly of some service; but on account of the popularization of nitrous oxide it has fallen into disuse. It may still be occasionally applied with advantage for the relief of the irritation caused by the application of caustics to the larynx, eye, or uterus. In the extraction of foreign bodies under the skin or nails, it has also applications which should not be neglected. Of course, its employment is confined to short and slight operations.

Of similar method of production probably is the employment of vibrations to produce anæsthesia in dental practice. It has been recommended to lightly touch an aching tooth or one with a sore and painful pulp with a rapidly revolving diamond-shaped drill. The rapidly repeated faint blows are soon followed by a numbing of sensation.

ANÆSTHESIA OF THE LARYNX.

Of the various methods of applying anæsthetics locally to the larynx, that of Professor SCHRÖTTER was most popular in Germany before the introduction of cocaine. His method is as follows: The evening before the operation, the glottis is painted with pure chloroform about a dozen times, and an hour afterwards with this solution of morphia:

17. R. Morph. hydrochloratis,
Aquæ destillatæ,

grs. xij.
f. 3 ij. M.

During the use of the morphia the patient must not swallow his saliva; indeed, after each use of the brush it is prudent to let him gargle his throat with a solution of tannic acid. Early the next morning the operation can be undertaken. If the patient be still sensitive, the whole proceeding must be repeated.

Prof. GERHARDT recommends as an anæsthetic, painting the laryngeal mucous membrane with a solution of *colchicum*.

Dr. FAUVEL, of Paris, objects to the German practice, though without apparent good grounds. He says the sucking of ice during the hour which precedes the operation, and the use of strongly astringent gargles, or of a gargle composed of a concentrated solution of *bromide of potassium*, are the best means of producing local anæsthesia. (*Dobell's Reports*, 1876.)

Dr. GLASGOW (*St. Louis Med. and Surg. Journal*, December, 1879), recommends *carbolic acid* or *chloral*. He has found, 1st. Carbolic acid, in strong solutions, produces anæsthesia of the larynx and relieves pain. The application causes an intense burning, which lasts about twenty seconds; the anæsthetic condition continues about two hours. 2d. The hydrate of chloral, in strong solution, applied to the mucous membrane, produces anæsthesia. The application causes a severe burning pain, lasting over a minute; the anæsthesia does not continue longer than one-half hour. 3d. The strength of the solution necessary to produce anæsthesia varies somewhat in different persons. 4th. It is recommended that the weaker solution be applied first, and this can be followed by the stronger solution. The first application is the only one causing pain. 5th. No bad results, either constitutional or local, have followed the application of strong solutions of carbolic acid.

Other surgeons (ZÄWERTHAL, 1880,) have stated that there is considerable danger of laryngitis or of poisoning in any of these methods of anæsthetizing the larynx.

II. THE THERAPEUTICS OF INFLAMMATION.

THE PREVENTIVE TREATMENT OF INFLAMMATION.—*The Removal of Irritation—The Importance of Rest—Limiting the Supply of Blood to the Part—Cold Applications—Warm Immersion—The Use of Veratrum Viride.*

THE IMMEDIATE TREATMENT OF INFLAMMATION.—*Constitutional and Local Treatment—The Asthenic and Irritative Types of Acute Inflammation; Chronic Inflammation—General Medical Treatment.*

NOTES ON REMEDIES.—*Internal Remedies—Cold—Electricity—Friction—Heat—Lotions—Poultices—Venesection—Diet in Inflammation.*

THE PREVENTIVE TREATMENT OF INFLAMMATION.

THE REMOVAL OF IRRITATION.

“The first duty of a surgeon in impending inflammation,” says the late Prof. N. R. SMITH, M. D., of Baltimore, in one of his lectures, “is to remove all sources of irritation.” (*The Baltimore Medical Journal and Bulletin*, January, 1871.) These may be mechanical irritants, as some foreign body whose presence may be unsuspected by the patient, especially in the case of children. Lead bullets and polished needles cause the least irritation of any classes of foreign bodies. Prof. SMITH, in his fifty years’ experience, never saw a case of tetanus caused by a needle, doubtless because of the cleanliness of this class of objects. Perhaps the greatest source of irritation, next to the direct injury in the case of wounds, is dirt, with its ever attending micro-organisms. To thoroughly rid the seat of injury of these deleterious agencies constitutes at the present day one of the gravest and most responsible duties of the surgeon. Particularly in a surgical sense is “cleanliness next to godliness.” Other sources of irritation may be pressure, as in bed sores, friction, as of broken bones, malformation, etc.

The irritant removed, the next duty of the surgeon is to place the

part in a state of complete repose. If the eye be hurt, let it be closed, and the light excluded. If a joint, a bone or a muscle has been irritated, let it rest in an easy posture.

The local effects of narcotic applications are often exceedingly grateful. The tincture, or, better still, the aqueous solution of *opium*, will often strikingly soothe the irritated nerves of a part. In injuries of the eye a solution of *atropia*, gr. v to water f.ʒj, applied with a wet rag, will subdue promptly intense neuralgia and other forms of pain. Bruised *stramonium* leaves are also a useful application.

THE IMPORTANCE OF REST.

Every surgeon should bear in mind the importance of *rest*—not merely local, but the quiet repose of the system generally—as a preventive measure against inflammation. To insure this, Mr. G. W. CALLENDER, of London, recommends the free administration of *opium*. He does not wait until the patient is restless and fails to sleep, but by a full dose he anticipates such a condition and prevents its occurrence; he does not postpone the anodyne until evening, but exhibits it as soon as the dressing of a wound is completed. After an anæsthetic, he recommends the prompt administration of morphia by subcutaneous injection, so as to avoid any disturbance of the stomach. Even where the patient avers that he cannot take opium, it is generally found that he progresses well under the influence of this sedative, especially if he does not know that he is taking it. Locally, all the arrangements for the dressing of a wound, for its position and protection, must be made with the object of strictly maintaining rest; the daily changes of dressing can and ought to be so arranged that they will not occasion the slightest disturbance of the parts.

Especially is general rest essential when the lower extremity is the seat of disease; when the body has experienced a severe concussion; or when the brain, lungs, intestines or kidneys are threatened with severe inflammation. In such cases, remarks Dr. D. HAYES AGNEW, “the value of absolute repose is incalculable, both as a prophylactic and a cure.”

LIMITING THE SUPPLY OF BLOOD TO THE PART.

Although the abstraction of blood from an inflamed part is one of the oldest operations in surgery, the idea of forestalling excessive in-

flammation by mechanically limiting the access of blood is of recent date.

Dr. TITO VANZETTI, of Padua, has practiced with success *compression* of the main artery leading to the inflamed part, thus diminishing the amount of the blood to what is necessary for or compatible with the separative process. This measure often avoids exhaustive suppuration and gangrene, as well as promptly relieves pain. It has been adopted with much success by Mr. SAMPSON GAMGEE, of London.

COLD APPLICATIONS.

The *local preventive* treatment of inflammation, according to Mr. ERICHSEN, is best carried out after removing sources of irritation and placing the part in repose by the free application of cold. If the injury be superficial, and not very severe, lint dipped in cold water, frequently removed, may be applied; or, if the skin be unbroken, an evaporating lotion may be applied. Should the injury be severe, cold irrigation will be preferable. This may be done by suspending over the part a large, wide-mouthed bottle full of cold water; one end of a skein of cotton, well wetted, is then allowed to hang in the water, while the other is brought over the side of the bottle. This, acting as a syphon, causes a continual dropping upon the part. Dry cold has the advantage of not soddening the part, and is less apt to be followed by gangrene. It is best applied by putting ice into a thin vulcanized india-rubber bag.

WARM IMMERSION.

Professor FRANK H. HAMILTON, M. D., of New York, has of late years strongly urged as a preventive measure against traumatic inflammation the use of *warm water* insted of cold, and of *immersion* as superior to irrigation. (*Richmond and Louisville Medical Journal*, January, 1874.) He places the injured part in a water bath constantly maintained at a temperature of 90°-95° Fah., and keeps it there from one to three weeks. When from the position of the injury this is not practicable, he covers with several thicknesses of sheet lint, previously saturated with tepid water, and encloses this with oiled silk. When the bath can thus be employed, little or no inflammatory reaction takes place, and gangrene is very successfully avoided, even in exceedingly severely lacerated and contused wounds of the extremities. Dr. HAMILTON, from an extended ex-

perience, much prefers this to the cool or cold prophylaxis of inflammation.

THE USE OF DRUGS, ETC.

The exhibition of *veratrum viride* has been advocated by Dr. H. C. WOOD, JR., as of great value in preventing inflammation after any severe injury. The patient should be placed at rest, and restricted to a low diet, while the tincture of veratrum should be administered very carefully, so as to keep the pulse as depressed as possible, but at the same time to avoid vomiting. To secure this latter opium should be combined with the veratrum.

A similar use of the drug has been urged by others. Dr. D. W. JONES, of New York, correctly points out that "the peculiarly beneficial effects of veratrum are experienced at that point where, in the initial stages of inflammation, congestion in the part has taken place, but the period of effusion has not yet been reached." (*Medical and Surgical Reporter*, April, 1872.) When there is present an inflammatory condition of the stomach and bowels, it must be used with great caution or not at all. In all cases where symptoms of shock are marked, of course any depressive remedies are to be avoided, and these find their use only when the period of reaction becomes pronounced, or in case of injury unattended by any degree of general depression.

In the same category of antiphlogistic remedies is to be mentioned aconite, which is esteemed by many surgeons as superior to all others of this class of medicaments. It is commonly used in small doses, repeated frequently throughout the day, guarded by careful watch over the temperature, pulse, and general symptoms of the patient. Half a drop to a drop, given every hour, is often of material service in preventing inflammatory reaction after operations. It is especially valuable in abdominal operations, particularly hernia operations, but must here be given most guardedly, as any depressant may serve but a poor purpose in these cases. In these abdominal cases, where the inflammation feared is confined generally to the peritoneum, a most valuable means of medicinal treatment is by free administration of sulphate of magnesia. In fact in gynecological abdominal surgery the old habit of "putting the bowel in splints," that is, preventing intestinal peristalsis, and thus affording rest, has been almost entirely superseded by salines employed as local depressants to lower the tendency toward peritonitis. So, too, mercury in the form of calomel is widely employed as a depressant in inflammations in almost any portion of the body.

THE IMMEDIATE TREATMENT OF INFLAMMATION.

PROF. S. D. GROSS, M. D., PHILADELPHIA.

This author divides the treatment of inflammation into two heads, the constitutional and the local treatment.

Constitutional Treatment.—At the head of the list of constitutional remedies for inflammation he places *general bleeding*. He believes that this is not often enough resorted to at the present day. The blood should be taken from a large orifice in a large vein, the fluid running to the amount of at least f.ʒiij a minute, the patient either sitting or standing. The operation is called for where there is a hard, strong, full and frequent pulse, a plethoric state of the system, and great intensity of morbid action. An average amount to take is sixteen to twenty ounces. If syncope supervenes it should be relieved gradually by loosing the clothes, fanning, or sprinkling with cold water; if it assumes an alarming character, ammonia to the nostrils, sinapisms over the heart and to the extremities, and a stimulating enema, may be called for. As calling for caution in the use of this measure, or for its prohibition, are the circumstances of extreme youth or age, corpulence, the nervous temperament, in exhausted states of the system, in exanthematous diseases, and after grave accidents.

The use of *cathartics* is particularly valuable in inflammation of the brain and its membranes, the eye and ear, throat, respiratory organs, liver, skin and joints. They are generally contra-indicated in gastritis, enteritis, peritonitis, cystitis, wounds of the intestine, and strangulated hernia. In external inflammations, as well as in inflammations of the supra-diaphragmatic organs generally, one of the most useful cathartics is an infusion of senna, or of senna and Epsom salts, combined with a carminative.

18. R.	Infusi sennæ,	f.ʒij	
	Magnesie sulphatis,	ʒij.	M.
For one dose.			

Enemata are often more prompt and efficient than cathartics by the mouth. An excellent one is

19. R.	Soapsuds,	one quart
	Vinegar,	two ounces.

Whatever material may be used, the important rule is to mix it

with a sufficient quantity of fluid, warm or cold, to distend the lower bowel. The patient should be placed upon his side or belly during the introduction of the nozzle of the syringe.

The value of *mercurials* in inflammation, both during its height to arrest its progress, and later to promote absorption, is very great. It is particularly conspicuous in phlegmasias of the fibrous and fibro-serous tissues, synovitis, carditis, arteritis, hepatitis, splenitis, osteitis, laryngitis, orchitis, iritis and syphilis. There is, however, a point in inflammatory affections prior to which mercury should not be given. This point is characterized by softness of the pulse, a relaxed condition of the skin, moistening of the skin, and a general tendency to restoration of the secretions. As a sorbefacient in chronic cases, it should be administered in a gentle and persistent manner, the gums being merely touched. For this purpose the bichloride may be given, or blue mass in small doses. Where a prompt and powerful impression is desired, the best article is calomel, in doses of gr. iij-v, every three, six or eight hours, until we have attained the object of its exhibition. Gray powder, a favorite with many, is unworthy of reliance. To prevent the mercurial passing off by the bowels, it may be combined with opium, gr. $\frac{1}{2}$ -j; and when the skin is hot or dry it may be added to tartar emetic, ipecacuanha, or Dover's powders. As counter-indications of mercurials may be mentioned age, anæmia, and the strumous habit of body.

The use of *emetics* in inflammation is at the present day limited almost exclusively to cases in which there is marked gastric and bilious derangement, as is noted by nausea and vomiting, headache, lassitude and pain in the back and limbs. They must be carefully avoided in inflammations of the sub-diaphragmatic organs, in cephalic and cardiac diseases, in herniæ, fractures and dislocations.

In acute inflammations, especially of the respiratory organs, joints, and fibrous structures in young and robust subjects, *depressants* are entitled to a high position. The most trustworthy are tartar emetic and ipecacuanha. *Tartar emetic* may be administered gr. $\frac{1}{8}$ - $\frac{1}{4}$ every two, three or four hours. If it produces vomiting, a small quantity of the salts of morphia should be added to it. In children, this should be an invariable rule. The dose of *ipecacuanha* as a depressant varies from gr. $\frac{1}{4}$ to gr. iss. It is peculiarly adapted to the inflammatory affections of children. Whichever article is employed, it is well to withhold all drinks from fifteen minutes to half an hour after the dose is taken, in order to avoid vomiting. At the

end of this time diluents may be used with benefit. *Aconite* is particularly adapted to neuralgic, gouty and rheumatic affections, and to the higher grades of traumatic fever. From gtt. j-v of Fleming's saturated alcoholic tincture of the root, repeated every two, three or four hours, is the usual form. *Veratrum viride* is applicable to the same class of cases. From gtt. v-viij of the saturated tincture of the root, every two, three or four hours, is the usual dose. Great care is demanded in its use, as it easily causes dangerous symptoms. *Digitalis*, as a depressant sedative, is not of much or any value.

An important class of remedies in inflammation are *diaphoretics*. Though many are known, but few are reliable. These are tartar emetic, ipecacuanha, Dover's powder, and spirit of mindererus. The best form to administer antimony is in a combination like the following:

20. R. Antimonii et potassii tartratis, Morphinæ sulphatis, Aquæ,	gr. $\frac{1}{10}$ - $\frac{1}{8}$ gr. $\frac{1}{4}$ - $\frac{1}{2}$ f. $\frac{3}{4}$ ss.	M.
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This amount every two, three, or four hours.

Dover's powder is an excellent form for ipecacuanha, grs. xv-xx, every eight, ten or twelve hours. The action of these remedies should always be aided by tepid drinks, and if there be much dryness of the surface, by frequent sponging of the body with tepid water. When there is nausea, dry skin, excessive thirst and great restlessness, the very best diaphoretic is lemon juice, in tablespoonful doses, saturated with bicarbonate of potassium, the salt being added slowly and gradually till all effervescence ceases. A twelfth of a grain of tartar emetic, or a few drops of tincture of aconite, may be added as an arterial sedative.

Of the various *diuretics* employed in inflammation, the most important are *nitrate of potassium* and *colchicum*. The former may be employed in doses of gr. xv-xxx every three, four, five or six hours in a large quantity of water. Colchicum may be employed as follows:

21. R. Tinct. colchici seminum, Morphinæ sulphatis,	f. $\frac{3}{4}$ j gr. $\frac{1}{2}$ -j.	M.
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This amount once daily, at bed-times.

This is far superior to three or four smaller doses, which only irritate the kidneys and bowels.

Anodynes are particularly beneficial in inflammation attended with violent pain. In giving them, depletory measures and catharsis

should precede them, if there is plethora or fecal distension. Full doses are required and they should preferably be given at bed-time. The best anodynes are *opium* and its derivatives. *Bromide of potassium* is valuable in all low forms of inflammation attended with loss of sleep, nervous excitement and gastric irritability. Full doses, gr, xx-xxx every two hours or oftener, are called for. *Hydrate of chloral* is a speedy, trustworthy soporific. The full dose is gr. xxx, repeated every few hours.

There are few cases of acute inflammation in which, sooner or later, *tonics* do not prove indispensable. Of them all, by far the most valuable are quinine, and the tincture of the chloride of iron with brandy, whiskey or wine. Alcohol in some form is the most trustworthy tonic and stimulant. The choice of the form may be left to the patient.

In most cases a combination of the remedies above described may be advantageously used. For this purpose Dr. GROSS recommends the following:

22. R.	Antimonii et potassii tartratis,	gr. ijss	
	Magnesiæ sulphatis,	ʒ ij	
	Morphinæ sulphatis,	gr. j½	
	Aquæ destillatæ,	f. ʒ x	
	Syr. zingiberis vel simplicis,	f. ʒ ij	
	Acid. sulph. aromat.,	f. ʒ ss	
	Tinct. verat. viridis,	f. ʒ iss.	M.

Of this combination the proper average dose is half an ounce, repeated every two, three, four or six hours. Should it produce emesis or severe nausea, the dose must be diminished. *Colchicum* may be added when there is a rheumatic or gouty state of the system, quinine when there is a tendency to periodicity, and *copaiba* when there is renal or cystic trouble. The quantity of morphine may be increased when there is much pain.

Local Treatment.—The local remedies of inflammation consist of rest and elevation of the affected part; the local abstraction of blood by scarification, puncture, leeching or cupping; compression, by the bandage or adhesive plaster; destructives, as the use of the cautery to poisoned wounds; counter irritants, especially blisters; and the local application of antiphlogistics.

Of the last mentioned, *water*, cold or warm, simple or medicated, is of immemorial use. Dr. GROSS generally prefers warm water to cold; a good rule, however, is to consult the feelings of the patient, and employ that which is more agreeable to him. The water may

be rendered anodyne, astringent or antiseptic, by the addition of opium, acetate of lead or some of the chlorides. When ice cannot be obtained, it may be rendered cold by the addition of one-sixth its bulk of alcohol, or by hydrochlorate of ammonium and nitrate of potassium. In employing cold water, the part is exposed, to favor evaporation; in the use of warm, it is covered, to maintain the heat.

Fomentations are often very beneficial in inflammations of the joints and internal viscera, as cystitis, gastritis and enteritis. The most simple consists of a large and thick flannel cloth, well wrung out of hot water, and applied lightly to the part as hot as it can be born. Two such cloths should be used, so that when one is taken off the other may immediately be applied.

Stuping is conducted with a piece of flannel rolled into a ball, which the patient holds in a small pitcher, at such a distance from the affected part that the vapor may ascend to it, the cloth being wet as often as it becomes cool. It is particularly serviceable in affections of the eye, nose, mouth and throat.

Poultices should be changed three or four times a day. They should be light, of medium consistence, and applied at about the temperature of the body. Even when quite mild they sometimes act as irritants.

Water and poultices are generally much increased in efficacy by adding hydrochlorate of ammonium, acetate of lead, or solution of the subacetate of lead. The first mentioned is especially called for where there is extensive effusion of fibrin, or fibrin and blood. Vinegar adds to its efficacy.

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|--------|--|---|
| 23. R. | Hydrochlorate of ammonium,
Vinegar,
Water, | one ounce
one ounce
half gallon. M. |
|--------|--|---|

Goulard's extract (solution of the subacetate of lead) is valuable for its astringent and sedative properties.

- | | | |
|--------|-----------------------------------|-------------------|
| 24. R. | Liq. plumbi subacetatis,
Aque, | f. 3 ij
Oj. M. |
|--------|-----------------------------------|-------------------|

When pain is present, laudanum or morphia may be added to this; but these articles must be cautiously applied to open wounds or sores. The best medium for applying these solutions is a double layer of old, soft flannel, kept constantly wet by pressing the fluid upon it with a sponge.

In very many inflammations of the cutaneous and mucous sur-

faces, *nitrate of silver* is an indispensable agent in treatment. It may be used as a vesicant or as an alterant; but much judgment is required in its employment, as it is capable of immense harm. The *tincture of iodine* is also exceedingly valuable as an antiphlogistic. For external use, it should be diluted with an equal quantity of alcohol, the mixture being brushed on with a camel-hair pencil until the skin is of a deep yellowish color. This may be repeated every eight, twelve or twenty-four hours, according to the exigencies of the case. When for the tonsils, uvula or other delicate parts, the dilution should be still greater.

Cleanliness: Within the last decade, the next to last of the present century, the profession has come to look with more and more definite knowledge upon the origin of inflammatory processes and upon the very important role played by bacteria in that origin. Inflammation has come to be looked upon not as an unavoidable disease entirely, but rather as a reaction, sometimes successful, sometimes not, against an underlying cause to be expelled from the body. This cause is in many instances a part of the body itself, rendered unfit for further use by injury, by gross external cause or by the action of bacteria, which in some way have gained entrance. The removal of these sources of irritation, the rendering perfectly pure the part infested by these mischievous micro-organisms, as far as possible, constitutes then a very important portion of the duty of the modern surgeon. The utmost cleanliness of the inflamed part, a cleanliness not simply manifest to the physical senses, but one which is absolute, is necessary. This cleanliness necessarily embraces as a principal element means of overcoming the bacteria which are present and expelling them from their point of action—the proper use of antiseptic and germicidal agents. These will be considered at length in the treatment of wounds.

MR. JOHN ERIC ERICHSEN, OF LONDON.

The Treatment of the Asthenic and Irritative Types of Acute Inflammation.—This surgeon draws forcible attention to the importance of distinguishing between the *sthenic* and *asthenic* types of surgical inflammation. The more he has seen of this form of disease, the more convinced has he become that the stimulating plan of treatment is the only method of carrying patients through those low forms of visceral inflammation that are so frequent in hospital practice. If the tongue, the pulse, and the general character of the

symptoms partake of the asthenic or irritative type, we cannot at any period have recourse to the depletory and depressant treatment recommended in sthenic inflammation; even if the inflammatory fever assumes this latter form, and yet the broken constitution, the advanced years, the exhausted constitution, or the cachexia of the patient, or the congestive and passive character of the local inflammation, gives reason to believe that the constitutional symptoms will not long continue of this type, we should proceed with great caution. Bleeding should be avoided, the bowels should be cleared out, the patient kept quiet, on a moderately low diet, and diaphoretic salines administered.

As the symptoms merge into the typhoid type, the pulse growing quicker and weaker, the tongue dry and dark, some stimulant in combination with the salines is demanded. The carbonate of ammonium, in doses gr. v-xv, may be given with bark, or in an effervescent form with gr. xv of bicarbonate of potash and a sufficient quantity of citric acid every third or fourth hour. The nourishment must be increased, and wine or alcoholic stimulants must be conjoined with it. Over-stimulation must be avoided, which may be done by observing the influence on the pulse and tongue of the treatment adopted.

When from the first asthenic symptoms show themselves, tonics and stimulants should be freely administered, with bland and easily assimilable food, as beef tea, eggs and farinaceous food. Ammonia and bark, wine, brandy and porter, with meat extract and arrow-root are often imperatively demanded in large quantities to save the patient's life. The brandy and egg mixture, if well made, combining nutriment and stimulus, is the best remedy that can be administered in many cases of low inflammation.

As the asthenic passes into the irritative form, opiates should be combined with the general treatment. When congestive pneumonia and asthenic bronchitis supervene, the following draught is advantageous:

25. R. Tinct. camphoræ comp.,
Ammonii carbonatis,
Decocti senegæ,

℥xx-xxx
gr. v-x
f. ℥ iss. M.

For one dose every three or four hours.

Rubefacients, blisters or dry cups should be applied to the chest. The diarrhœa that not unfrequently occurs must be met with opiates

and astringents; and if the urine cannot be passed, it must be drawn off with a catheter.

THE TREATMENT OF CHRONIC INFLAMMATION.

In treating chronic inflammations, *hygienic measures* are first in importance. Pure air, a light, digestible, nourishing diet, and cleanliness are indispensable. In the more active forms *mercury* is of great service, but should be avoided in cachectic and strumous patients. The most useful preparations are calomel, gr. $\frac{1}{8}$ – $\frac{1}{2}$, or iodide of mercury in the same doses, or the bichloride, gr. $\frac{1}{10}$ – $\frac{1}{8}$. *Iodide of potassium* is extremely valuable in chronic inflammation of the fibrous or osseous tissues, or of the glands in strumous patients. The fluid extract of the red Jamaica *sarsaparilla* is also a very valuable remedy, especially in inflammation associated with want of power. In strumous forms of chronic inflammation, *cod-liver oil* is of very great efficiency, especially in children and young people. *Purgatives* are often required in this form of inflammation. Warm aperients, as compound decoction of aloes with Rochelle salts answers best. For children the following:

26. R. Hydrarg. cum cretâ,
Fulveris rhei,
Sodii bicarbonatis

℞i
℞iv
℞ij. M.

For one dose, gr. x–xxx.

The *local treatment* includes local bleeding, warmth and moisture, cold and counter-irritation. Friction is often of great service in this form. In the latter stages the pyogenic counter-irritants—issues, setons and the cautery—may be very advantageously employed. Astringents directly applied to the inflamed parts are of extreme utility in those forms of passive inflammation where the circulation is sluggish and the capillaries loaded. The nitrate of silver, either solid or in solution (gr. j–5j to aquæ f.5j), is commonly preferred. Pressure is also of essential service in supporting the feeble vessels in congestive inflammations.

J. MILNER FOTHERGILL, M. D., OF LONDON.

General Medical Treatment of Inflammation.—The two varieties of inflammation, sthenic and asthenic, must be broadly distinguished.

In the treatment of the sthenic or active form, the first indications are to lower the temperature and reduce the vascular excitement. To this end, either acetate of ammonium, nitrate or citrate of potash,

or the purgative effects of citrate of magnesia, may be used. For the pain a full dose of opium, given at bed-time, is most efficient.

- | | | | |
|--------|---|-----------------------------|----|
| 27. R. | Pulveris opii,
Hydrargyri chloridi mitis,
Pulveris Jacobi veri, | gr. ij
gr. iij
gr. v. | M. |
|--------|---|-----------------------------|----|
- For one dose at night.

This may be followed in the morning by a Siedlitz powder, or a glass of some purgative natural water. During the day the following may be prescribed :

- | | | | |
|--------|---|------------------------|----|
| 28. R. | Vini antimonii,
Tincturæ hyoscyami,
Liquoris ammon. acetatis, | ℥xx
f. 3ss
f 3j. | M. |
|--------|---|------------------------|----|
- This amount every six hours.

Or hydrate of chloral may be combined with opium and camphor.

- | | | | |
|--------|---|-----------------------|----|
| 29. R. | Chloral. hydratis,
Tincturæ opii,
Misturæ camphoræ, | gr. xv
℥x
f 3j. | M. |
|--------|---|-----------------------|----|
- Once every six hours.

One or two drops of the tincture of aconite may be given in water every few hours in place of these mixtures. The food in this shape should be bland, nutritious, and easily digestible. Such a combination is found in milk and seltzer water, in chocolate, blanc-mange, beef tea, or Liebig's extract, rice water, etc. Cool water, lemonade or weak claret and water, may be freely allowed. Cold applications and poultices may be called for locally.

When by the use of the direct depressants of the circulation the acute symptoms have been abated, an interval not infrequently elapses between the inflammatory rise and the convalescence proper. Then a line of treatment is to be instituted which is tonic, any out calculated to control any tendency to another rise of temperature. Such measures we shall find in the union of vegetable tonics with the mineral acids. Nitric, muriatic or phosphoric acid may be combined with quinine, or with gentian, cascarilla or columbo. When a tendency to constipation is present, sulphate of magnesia is the most appropriate tonic. A good form of combination is the following :

- | | | | |
|--------|---|--------------|----|
| 30. R. | Acidi hydrochlorici diluti,
Infusi cinchonæ, | ℥x
f. 3j. | M. |
|--------|---|--------------|----|

Or the following :

- | | | | |
|--------|-----------------------------|------------------------------|----|
| 31. R. | Acidi hydrochlorici diluti, | \mathfrak{m}_x | |
| | Quininæ sulphatis, | $\mathfrak{gr.} \frac{1}{2}$ | |
| | Infusi cascarille, | f. \mathfrak{z} j. | M. |
- To be given three or four times a day.

As this intermediate condition disappears, actual convalescence should be established. This, however, is frequently retarded by impaired functional activity and loss of tone. The food does not seem to benefit the patient, and there is torpor of the alimentary canal. When this is associated with a tongue coated with a yellowish fur, and with a foul taste in the mouth on awaking, a mercurial laxative is called for. If the appetite is capricious, and assimilation imperfect, a mixture like the following will be found advantageous :

- | | | | |
|--------|---------------------------|----------------------|----|
| 32. R. | Tinct. ferri chloridi, | \mathfrak{m}_v | |
| | Acidi hydrochlor. diluti, | \mathfrak{m}_x | |
| | Infusi calumbæ, | f. \mathfrak{z} j. | M. |
- For one dose, three times a day, half an hour before meals.

Or citrate of iron and quinine may be given instead. The bitters act beneficially on the stomach in these conditions. If the bowels be merely inactive with a fairly clean tongue, a little pill, *aloes et myrrha*, at bedtime every night, or every other night, will be found sufficient to keep the patient on the right track. If, as often happens, the combination of a vegetable tonic with iron produces a disagreeable sense of feverishness and heating, the addition of a little sulphate of magnesia will generally relieve the symptoms, as :

- | | | | |
|--------|--------------------------|------------------------------|----|
| 33. R. | Magnesii sulphatis, | \mathfrak{Dss} | |
| | Quininæ sulphatis, | $\mathfrak{gr.} \frac{1}{2}$ | |
| | Liq. ferri persulphatis, | \mathfrak{m}_v | |
| | Infusi quassiaë, | f. \mathfrak{z} j. | M. |
- This amount three times a day.

This is an excellent and useful combination where the ordinary quinine and iron mixtures do not agree.

Great care should be taken to protect the patient from sudden changes of temperature, cold, damp, and draughts. Should the increasing appetite lead, as in children it is especially apt to, to excess in eating—to what used to be called “a surfeit”—an emetic followed by a purgative is the proper treatment.

In regard to the diet of the early stage of convalescence, alcohol in the form of the brandy-and-egg mixture is often valuable. Alcohol may also be given instead of opium at night to induce sleep. As

convalescence becomes established, little allurements in the nature of the viands is required to tempt the appetite; plain food is taken with avidity, and one must guard against an excess of it.

In the second or asthenic form of inflammation, important modifications of the above treatment are required. This form occurs in systems exhausted from any cause, in the aged and in broken-down constitutions. Such cases are not to be treated by depressants. They require alcohol, ammonia, quinine, beef tea, musk, etc., in liberal quantities and at brief intervals. The utmost possible union of stimulants and tonics with nutritious food is indicated to get the organism safely through this period of peril.

34. R.	Ammonii carbonatis, Spiritus chloroformi, Infusi cinchonæ,	gr. v m̄ xx f. ʒj.	M.
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In one dose every four or six hours.

Wine, milk, beef tea or egg-and-brandy should be supplied at frequent intervals. The ethers of wine make it especially suitable for this organic condition. Needless to add that blood-letting, purgation or other such measures are wholly out of place in such a case.

In regard to the "calomel and opium" treatment of active inflammation, especially of fibrous and serous tissues, Dr. FOTHERGILL'S own experience is chiefly confined to having seen harm done by it, and he believes that it cannot be recommended except in the treatment of inflammatory conditions of syphilitic origin, or occurring in a system saturated with syphilis.

PROF. D. HAYES AGNEW, M. D. *

Some special features of this surgeon's treatment of inflammation will be mentioned.

He condemns setons, issues, moxas and the hot iron. As counter-irritants, he has witnessed striking advantages from mustard plasters in light cases; for more chronic cases, *iodine* is invaluable both as a counter-irritant and alterative. The peculiar action of the drug may be secured without any of its unpleasant effects, by using it in the following formula:

35. R.	Liquoris iodinii compositi, Pulveris sacchari albi, Pulveris acaciæ, Aque destillatæ,	f. ʒvj āā gr. xl f. ʒij.	M.
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For local applications.

* *The Principles and Practice of Surgery*, 1878.

Dr. AGNEW speaks strongly in favor of *mercurials*, saying: "I should regard their proscription as a public calamity." The preparations he prefers are calomel, corrosive sublimate and blue mass. Salivation is rarely, if ever, necessary. *Blood-letting* he also considers as of great curative power in frequent cases. After blood-letting, the vegetable depressants *aconite* and *veratrum* come in most happily, holding the circulation down after it has been reduced by the loss of blood; or, in cases not urgent, they may serve as substitutes for the lancet. Antimony is no favorite with him, and he rarely exhibits it.

NOTES ON REMEDIES.

INTERNAL REMEDIES.

Aconitum. This a powerful depressant and antiphlogistic. Its effects are especially beneficial in gouty and rheumatic inflammations, in high traumatic fever, in erysipelas and the inflammation which sometimes follows vaccination (RINGER). Where the intestinal mucous membrane is inflamed, aconite is contra-indicated (BARIHOLLO). In *gonorrhœa* and *orchitis* it is very useful, and in the reflex fever which sometimes follows the passage of a catheter or bougie (the so-called *urethral fever*), Dr. H. C. WOOD, Jr., states that the following affords an excellent combination:

36. R.	Tinct. aconiti radicis,	gtt. j	
	Spiritus ætheris nitrosi,	f. 3 ij	
	Misturæ potassii citratis,	q. s. ad f. 3 j.	M.

This much every two hours for an adult.

Ammonii acetat. In acute inflammation, Mr. FAIRLIE CLARKE recommends:

37. R.	Sp. ætheris nitrosi,	f. 3 ij	
	Liq. ammon. acetat.,	f. 3 iij	
	Aquæ camphoræ,	q. s. ad f. 3 jss.	M.

Antimonii et potassii tartras. As an antiphlogistic, tartar emetic should be given in doses of gr. $\frac{1}{12}$ – $\frac{1}{4}$. Its effects are greatly enhanced by the addition of a small quantity of morphia.

Chloralum As this drug diminishes the coagulability of the fibrin in the blood, and acts as an anodyne, its use is indicated where the temperature is high, and restlessness or delirium present.

Cocaine is a remedy which if used at the stage of congestion materially aids in the treatment of inflammation. Its application to a congested tissue is at once followed by a blanching, the vessels of the part contracting under the influence of the drug. It is thus of material service in overcoming the inflammation of boils and carbuncles, often exerts

positive effects upon the dermal inflammations, as in eczema, and is an almost popular remedial agent in hay-fever.

Belladonna is a most valuable preventive of inflammation, and after its onset will greatly relieve the pain. It may be used both internally and externally.

Digitalis, in *large doses*, used at the commencement of acute inflammations, is said often to cut them short. From f. ʒss-j of the tincture is recommended for a dose. Used as a depressant, Professor S. D. GROSS says he has lost confidence in it. In erysipelas, and acute inflammations of the joints and breast, the following fomentation is said to be valuable :

38. R.	<i>Digitalis foliorum,</i>	ʒj	
	<i>Aquæ bullientis,</i>	Oj.	M.

Apply locally.

Gelsemium produces in animals a marked fall of temperature, and has been widely used in sthenic inflammation. Its precise value is not yet ascertained. Dr. E. P. HURD, of Massachusetts, has found it unequaled as a cardiac sedative. (*Boston Medical and Surgical Journal*, December, 1870.)

Hydrargyrum. Numerous preparations of mercury are used in inflammation. Although doubt has been thrown on its antiphlogistic properties, clinical experience seems to demonstrate them. (For the rules of its use see above, pages 54, 64.)

Ipecacuanha in small doses is valuable as a depressant.

Opium, as an anodyne, is indispensable in the treatment of the pain and restlessness of inflammation. The alkaloid *Codeia* is that preferred by Professor S. D. GROSS.

Potassii Acetas is a useful saline in acute inflammation.

Potassii Bromidum is a most valuable remedy in all low forms of inflammation, attended with loss of sleep, unusual nervous excitement and irritable stomach.

Potassii Nitrates has been largely given in acute inflammation, under the belief that it defibrinizes the blood, but this action is doubtful. It is, however, a diuretic and diaphoretic of value.

Veratrum Viride is an important depressant, see above (page 52). As a *preventive* of inflammation after any severe injury, it is invaluable.

EXTERNAL APPLICATIONS.

COLD.

Cold has been employed in inflammation from the earliest times. It is applied in various ways, by cold baths, by streams of cold water, by cold moist sponges and cloths, by bladders filled with ice, and by the evaporation of ether.

Cold Application :

39. R.	Nitre,	$\frac{3}{4}$ ss	
	Sal ammoniac,	$\frac{3}{4}$ ij	
	Vinegar,	f. $\frac{3}{4}$ iss	
	Water,	Oj.	M.

This solution, applied by means of sponges or cloths to the head and elsewhere, where intense cold is desired, produces a more powerful effect than cold water or pounded ice.

Cold without Moisture. When it is desired to apply a freezing mixture to the skin, it may be readily done by applying a mixture of ice and salt in a tumbler or a lamp glass covered with a piece of bladder.

Hydropathic Belts. A hydropathic belt consists of a bandage five or six inches wide, and long enough to pass two or three times around the body. It is dipped into cold water, carefully wrung out, wound around the trunk, and covered by a wider and larger dry band. About every hour, or as often as it becomes dry, it is to be changed. A bandage may be applied in the same manner upon various parts of the body, and particularly over the joints attacked by rheumatism. An eruption of the skin is usually produced by this application, which is frequently of service.

Ice Poultice. Spread a layer of linseed meal, three-fourths of an inch thick, on a cloth of proper size, and upon this, at intervals of an inch or more, place lumps of ice the size of a marble. Sprinkle with meal, cover with another cloth, folding in the edges, and apply the *thick* side to the wound.

Manner of applying Cold Affusion. The patient stripped naked is to have from three to five gallons of water, at 50° F. or 60° F., in the winter, and 60° F. or 70° F., in the summer, thrown over him. Simple water, or vinegar and water, or salt and water, may be used. The safest time for the application during fever is when the exacerbation is at its height, or immediately after its declination has begun. From six to nine o'clock in the evening is the hour usually chosen.

Cautions in the Use of Cold Affusion. 1. It should never be employed where there is any sense of chilliness, although the thermometer indicates a morbid degree of heat. 2. It should never be employed in the cold stage of fever, nor when the heat measured by the thermometer is less than, or equal to, the natural heat, (98½° F.,) even though the patient is not chilly. 3. It should never be employed when the body is in a profuse perspiration; nor in fever complicated with any visceral inflammation. The patient should always immerse his hands for a few moments in the water before it is applied to any other part of the body; this prevents the shock from being too violent. The earlier in the disease it is resorted to, the better the effects of cold

affusion ; but in the more advanced stages it will be found to moderate the symptoms.

FRICTION.

Rubbing, Massage or ordinary friction is very useful in chronic inflammation depending on the relaxation of the vessels of the part, or where there is effusion. The friction should be in such a direction as to excite venous circulation. Often a stimulating liniment may be advantageously rubbed in.

HEAT.

Modes of Application. Flannel highly heated in an oven, or before the fire, may be employed to apply dry heat ; but it cools quickly. *Hot sand*, though heavy, and therefore for many purposes contra indicated, retains its heat for a long time. It should be heated over the fire in an iron pan, and put in a warm linen bag of the proper shape for the object in view. *Chamomile flowers* are lighter than sand, but more quickly lose their warmth. They are to be heated and placed in a linen bag, in the same manner as the sand. A thin piece of *flat tile*, when it can be procured, can often be used with advantage. It is lighter than sand, and when heated in an oven and wrapped in a flannel, retains its warmth for a considerable time. A heated *brick* wrapped in flannel may sometimes be employed ; so also may *bottles with hot water*. Dr. DA COSRA frequently recommends the use of *hot salt* in a bag, applied to the back of the neck in congestive headache, etc.

Fomentation is the application of warmth and moisture to the surface of the body by means of a flannel or soft cloth. *Steaming* consists in exposing a part to the vapors arising from a piece of flannel wrung out in boiling water ; it is often employed in affections of the eyes.

An Ordinary Fomentation. Immerse a piece of flannel in boiling water, remove it and put it in a wringer made by attaching stout toweling to two rollers. The wringer is twisted around the flannel very strongly, till as much as possible of the water is pressed away. The wringer is useful, as the flannel is too hot when first removed from the boiling water to be grasped by the hand. When wrung as dry as possible, fomentations prepared in this way may be applied very hot without fear of scalding or blistering the skin. The flannel when applied to a part should be covered with a piece of oiled silk or rubber cloth, and changed before it becomes cold. On the removal of the fomentation the skin should be at once gently dried and covered with a piece of dry flannel. If the precaution of covering the fomentation with oiled silk, muslin, or paper, or a rubber cloth, be neglected, the warm, comforting flannels will be converted in a few minutes into cold, clammy, wet ones, disagreeable and hurtful to the patient.

Turpentine Fomentation. Steep a piece of lint or linen in oil of turpentine, place it over the part and immediately apply over it flannel heated as hot as it can be borne. This is frequently more effectual than a mustard plaster. Or: Sprinkle the flannel wrung out of hot water in the manner just described, with a tablespoonful of turpentine. This will act as a counter-irritant, rapidly reddening the skin and relieving pain in many cases.

Opium Fomentation. Instead of turpentine employ laudanum as directed in the preceding receipt. Used to relieve pain.

Mustard Fomentation. Add a quarter of a pound of mustard to a pint of boiling water. Wring the flannel cloths out in this solution in the manner above directed. This fomentation quickly reddens the skin, and is frequently useful in allaying pain.

LOTIONS.

These are especially called for after *sprains*, *bruises*, and *blows* which do not break the skin, but are followed by ecchymosis, suggillation, swelling and pain. For this purpose, those which are cooling and discutient are the most useful.

40. R.	Acidi tannici,	℥j	
	Tincturæ opii,	f. ℥ij	
	Aquæ,	f. ℥vj.	M.

Astringent and sedative.

41. R.	Liquoris plumbi subacetatis,	f. ℥j	
	Alcoholis,	f. ℥vj	
	Extracti opii,	gr. x	
	Aquæ,	f. ℥x.	M.

Astringent and sedative.

42. R.	Ammonii chloridi,	℥v	
	Acidi acetici,	f. ℥x	
	Alcoholis,	f. ℥x	
	Aquæ,	q. s. ad. f. ℥x	M.

Evaporating and discutient. Highly esteemed in the London hospitals.

43. R.	Sodii boratis,	℥j	
	Alcoholis diluti,	f. ℥iss	
	Aquæ destillatæ,	f. ℥ijj.	M.

To be applied in lotion several times a day, on bruises with excoriated skin.

44. R.	Liquoris ammoniæ acetatis,	f. ℥ss	
	Aquæ,	f. ℥iss.	M.

Use as a refrigerant lotion.

45. R.	Extracti conii,	℥ij	
	Liquoris plumbi subacetatis diluti,	f. ℥xij.	M.

As a cooling and anodyne lotion.

The following are useful lotions :

46. R. Ammonii chloridi, ʒ ijss
Camphoræ, ʒ ij
Saponis, ʒ iss
Alcoholis diluti, f. ʒ v. M.
Immerse a piece of flannel in this solution, and retain it upon the painful joint by means of a bandage.
47. R. Ammonii chloridi, ʒ ij
Spiritus vini rectificati, āā f. ʒ ij. M.
Aquæ, āā
An excellent cooling and discutient application in sprains, bruises, orchitis, and local external inflammations generally.
48. R. Arnice florum, ʒ j
Aquæ bullientis, Oj. M.
This preparation is preferable to the tincture of arnica as a vulnerary, as the latter is occasionally followed by eczema.
49. R. Tincturæ capsici, q. s.
A strong tincture of capsicum is said to act like a charm on discolored bruises, "black eyes," etc.
50. R. Acidi sulphurosi, āā partes equales. M.
Aquæ,
The marks of bruises, it is said, may be prevented or quickly removed by this lotion.

POULTICES.

When Employed. In the beginning of inflammations, to arrest them and prevent the formation of pus ; also after suppuration, to facilitate the passage of the matter to the surface, and its expulsion, and limit the spread of inflammatory action.

Hints and Cautions. It is important that poultices should be applied as hot as can be borne, and frequently changed, the old poultice not being removed before the new one is at hand to replace it. In the treatment of boils, it is good practice to cover the boil with a piece of opium plaster with a circular hole, and to apply the poultice only over the plaster, or to smear the contiguous surface to the boil with zinc ointment, the object being to protect the adjacent tissues from the action of the poultice, which has a tendency to develop fresh boils. (RINGER.) The principal materials of which poultices are made are linseed-meal, oatmeal, bread, starch, charcoal, yeast, carrots, and potatoes.

Linseed-meal Poultice. Rinse a bowl or basin with *boiling* water, to heat it, then pour in sufficient boiling water ; with one hand sprinkle into the bowl the meal, while with the other stir the mixture constantly with a spoon or spatula, till sufficient meal has been added to make a thin and smooth dough. This should be done *rapidly*, otherwise the poultice will be almost cold when made. The *meal should always be*

added to the water with constant stirring, as here directed, for if the water be poured over the meal, the two ingredients are not well blended, and a lumpy, knotty mass is the result. The dough thus made should be spread quickly and evenly over a folded piece of warm linen cut ready to receive it.

The following is the formula of the British Pharmacopœia for this poultice :

51. R.	Lini,	$\frac{3}{4}$ iv	
	Olei olivæ,	f. $\frac{3}{4}$ ss	
	Aquæ bullientis,	f. $\frac{3}{4}$ x.	M.

This is a compact and only slightly porous poultice, and retains heat and moisture longer than any other kind except oatmeal. It is also more tenacious than a bread poultice, and therefore less liable to break and fall about. But the acrid matter which the linseed contains sometimes irritates a delicate skin, in which case an oatmeal or bread poultice should be substituted.

Slippery Elm Poultice. Prepared from the powdered bark of the slippery elm, moistened with hot water. It is very light and demulcent, well adapted for burns, excoriations and irritable sores.

Bread Poultice. Cut the bread in thickish slices, put it into a basin, pour some boiling water over it, and place the soaking mass by the fire for five minutes ; then pour off the water, replacing it with fresh boiling water, and repeat this process ; afterwards pour off the excess of water, and press the bread, beat up with a fork and make into a poultice.

Another Bread Poultice. Cut stale bread into thick slices, and pour enough boiling water over it to cover it ; place the whole by the fire, and allow it to simmer for a short time, then strain off the excess of water, and prepare the poultice. The first of these is a porous poultice, the second a more compact poultice, resembling a flaxseed poultice.

Carrot Poultice. Scrape the raw carrots into a pulp, or boil them until they are soft, and then mash them to a pulp. Either can be used as a stimulant cataplasm in sluggish inflammations.

Cataplasm of Fucus Crispus. Spread out evenly a sheet of carded wadding, and pour on it a concentrated mucilaginous infusion of *Fucus crispus* (Irish moss). Cover with another sheet of carded wadding, and beat lightly with a soft brush, to cause the jelly to be evenly absorbed. Then dry at a moderate temperature. When used, place the sheet in a large plate and moisten with boiling water.

Starch Poultice. Add a little cold water to the starch, and blend the two into a pap ; then add sufficient boiling water to make a poultice of the required consistence, which must be spread on linen in the manner already described for linseed poultice. The starch poultice is useful

in skin eruptions attended with much heat and pain, and in general when a soothing application is required.

Carbolic Acid Poultice. Make a linseed poultice, but substitute the carbolic acid lotion (acidi carbol. cryst., gr. j ; aquæ, ℥ l.) for one-half of the water. (*London Fever Hospital.*)

Charcoal Poultice. The charcoal may either be mixed with the ingredient of the poultice, or sprinkled over the part and covered with a simple poultice, or the following formula of the British Pharmacopœia may be employed :

52. R.	Carbonis ligni,		ss	
	Panis,		ij	
	Lini,		iss	
	Aquæ bullientis,		f. 3 x.	M.

Used as a disinfectant to putrid wounds, etc.

Yeast Poultice. There are two ways of making a yeast poultice. In the first the yeast and water are added to flour till ordinary dough is made, and the dough is applied while fermentation is going on. In this case we have simply an application of rising dough. In the other way warm yeast is spread over the surface of a simple bread poultice.

The following is the formula of the British Pharmacopœia :

53. R.	Beer yeast,		f. 3 vj	
	Flour,		3 xiv	
	Water at 100°,		f. 3 vj.	M.

Used as a stimulant to sluggish or sloughing wounds, etc.

Potato Poultice. Dr. McCALL ANDERSON recommends in eczema, attended with much inflammation and sensation of heat, the sprinkling over a cold potato poultice of a camphorated absorbent powder, of which the formula is as follows :

54. R.	Pulveris camphoræ,		3 ss	
	Zinci oxidi,			
	Pulv. talc,	āā	3 iij.	M.

Even without the poultice this is a valuable dusting powder.

Iodide of Starch Poultice. Mix two ounces of starch with six ounces of boiling water, which forms a jelly ; add to it, before it cools, half an ounce of liquor iodi. Spread the poultice on lint, and apply cold.

Alum Poultice. Composed of the whites of two eggs and 60 grs. of alum. Its action is astringent.

Chlorinated Soda Poultice :

55. R.	Liquoris sodæ chlorinatæ,		f. 3 ij	
	Lini,		3 iv	
	Aquæ,		f. 3 viij.	M.

Use as an antiseptic.

Hemlock Poultice. The following is the formula of the British Pharmacopœia :

56. R.	Conii foliæ,	℥ i	
	Lini,	℥ iij	
	Aquæ bullientis,	f. ℥ x.	M.

Used as a sedative and anodyne.

Mustard Poultice. (Sinapism.) The following is the formula of the British Pharmacopœia :

57. R.	Mustard,	℥ iijss	
	Linseed meal,	f. ℥ x.	M.
	Water (hot),		

Used as a rubefacient and stimulant.

VENESECTION.

The following practical directions are very concisely given by Dr. DEPUIT, of London :

Manner of Bleeding. General bleeding should be executed in such a way as to cause slight faintness as quickly as possible. For this purpose the blood should be drawn, as rapidly as possible, from a large orifice ; and above all, the patient should sit or stand upright. For if the blood is drawn slowly, so that the vessels have time to adapt themselves to their diminished contents, or if the patient is lying down, so as to admit the flow of blood to the brain, the bleeding may be continued almost to death without the occurrence of faintness.

Quantity to be Taken. As a general rule, the blood should be permitted to flow till paleness of the lips, lividity about the eyes, sighing, nausea, fluttering pulse and relief of the pain, indicate the *approach* of faintness ; but *full* faintness should always be avoided.

The class of Patients whom it is allowable to bleed, as a general rule, are the robust, with red lips, firm muscles, rustic open-air occupations, firm pulse and rigid fibre. Pregnant women usually bear bleeding well. If the lips and conjunctiva are pale, showing deficiency of blood ; if the patient is bulky, soft, flabby ; if there is any weakness or degeneration of the heart ; or if there is any continuous disease of assimilation—scrofula, Bright's disease, or the like—bleeding can scarcely be thought of.

The class of Inflammations in which bleeding is permissible are those of sthenic inflammation of vital organs, especially the chest. It is not allowable, as a rule, in the *asthenic class* of maladies, nor in wound infections ; nor in the case of injuries requiring great constitutional efforts for their reparation, as compound fractures ; nor if the disease be advanced towards suppuration or gangrene ; and very seldom indeed in the case of a zymotic disease, or inflammation having a natural tendency to recover, or traumatic inflammation of parts not essential to life.

THE DIET IN INFLAMMATION.

The view entitled to the greatest weight on this subject is expressed in the treatises on surgery of Dr. D. HAYES AGNEW and of Dr. JOHN ASHHURST, JR., both published at the close of 1878. Dr. ASHHURST believes that from the outset the patient should take light and easily-assimilable food in small quantities and at frequent intervals. He prefers *milk* in teacupful doses every few hours, and later beef essence and strong broths. Weakness of the pulse, and especially delirium, is an indication for *alcohol*, whisky or brandy, $\frac{3}{4}$ iv-vj, or wine \mathcal{O} ss, in the twenty-four hours. Dr. AGNEW is a more rigid dietician. He strongly condemns "the modern plan of stuffing patients from the very inception of the disease." He considers that cold water, barley water, or water diluted with milk, supplies all that is needful at first. When the febrile disturbance subsides, then beef tea, animal broths, milk, eggs, etc., may be given.

The views expressed by these eminent authorities are generally adopted by surgeons at the present date, but the general condition must constitute the criterion according to which the diet must be conformed in each case.

III. THE TREATMENT OF WOUNDS.

The General Treatment of Wounds—Antiseptic Treatment—Aseptic Measures—Treatment by Occlusion—The Open Treatment—Water Dressings—Dry Dressing—Earth Dressings—Alcoholic Dressings—Notes on Remedies.

THE GENERAL TREATMENT OF WOUNDS.

Within the past decade much that was written under this heading in previous editions of this work has steadily and surely been reversed and denied. The question of preference between the old treatment of wounds, by which they were permitted to heal gradually, slowly, with suppuration, by granulation, and the brilliant and eminently satisfactory results of modern antiseptic and aseptic surgery, is no longer broached by progressive surgeons. The statistics of carefully-applied antiseptic surgery have demonstrated the enormous gain to human life that has been inaugurated through the teachings of the great English surgeon, SIR JOSEPH LISTER. So, too, the advance in the operative procedures possible to-day through these improved methods has led to the establishment of those important additions to the surgery of the abdominal, thoracic, and cranial contents, additions to which the surgeons of this country have contributed no mean portion.

The aim of the surgeon, when called upon to treat an open wound, is to bring about the repair of the tissues in the manner most conducive to the welfare, present and future, of the patient. The causes which, when such wounds are not interfered with by the surgeon, lead to the retardation of healing, have been clearly demonstrated to consist of vital elements, bacteria in by far the largest measure; and in point of fact the entire external causation of such retardation may be set down to dirt, regarding bacteria as a most frequent factor in filth. Whatever views have been pressed upon the profession, indicating certain reasons for preventing prompt union of wounds, have, in the light of the doctrines of cleanliness, which constitute such a great part of the teaching of contemporaneous surgery, vanished. The indications sought to be met by every clear-headed practitioner of to-day in the

dressing of wounds contemplate the establishment of cleanliness. A clean wound is so dressed that it may remain clean; an open wound is cleansed, not only from the visible, but as well from the invisible dirt. Pus is no longer regarded as laudable; surgery has set its limiting line beyond the occurrence of pus, and woe is the conscience of the surgeon who encounters any amount of it upon the dressings of the wounds he has made in his operations. That there has been so great an advance in the subject does not of course indicate that all that is old is to be condemned. Much, however, which has approved itself in the blind empiric knowledge of yesterday, to-day is regarded as belonging rather to the scientific epoch of the present, and those blundering expedients which in ignorance were justified in the professional opinion no longer have a recognized position in the measures to be practiced by the surgeon. The modes of treatment of wounds, the various dressings applied, are perhaps quite as numerous and varied as in the older days, but there runs through every one of them the same effort—toward cleanliness. Many must remain before us by their same names, modified only that their beneficial effects may be augmented by establishing their claim to place in the antiseptic or aseptic category. There is perhaps but little difference in the efficacy of this or that mode; their values depend upon the circumstances of the case and upon personal preferences.

There are perhaps a few who are even now not averse to free supuration in the treatment of wounds caused by the removal of neoplasms, as mammary cancers; but the fairer as well as the more progressive of the profession do not care to add the drain of suppuration to the existing cachexia from the tumor.

PROF. THOMAS BRYANT, OF LONDON.

In the *International Encyclopædia of Surgery*, this gentleman in treating of the subject of wounds lays down these indications to favor the rapid and cleanly healing of wounds: 1, to cleanse the wound; 2, to arrest all bleeding; 3, to effect coaptation of the edges and deep parts of the wounds; 4, to render the parts immobile; 5, to secure thorough drainage for the elimination of dead tissues and other noxious factors; 6, to protect the wound from external prejudicial agencies.

Where the wound is a clean cut one, with the edges naturally coapted, there is usually little to be done beyond the mere examination, and washing out with a gentle stream of sterilized water the

blood and what little dirt may have entered, beyond the external dressing—unless the hemorrhage is sufficient to demand attention. In more serious wounds, and in more open ones, great care must be paid the process of cleansing. The surfaces are to be carefully examined, all larger particles of foreign matter removed by forceps, all bleeding vessels closed, and the entire wound thoroughly washed with a gentle stream from a wash bottle or from one of the variously suggested syringes or washing cans. The water used for such purpose is to be pure (chemically and vitally pure), and should be of the temperature of the body or thereabouts. Where there is necessity for checking capillary hemorrhage, the water may be used hot, with the additional purpose of acting as a styptic. The author has used as an antiseptic agent for general purposes in cleansing wounds tincture of iodine, in the proportion of 20 drops of the tincture to an ounce of water; but leaves to the opinion of the practitioner what special antiseptic should be employed in each case. The iodine solution used hot is particularly valuable in that it acts as a powerful styptic.

The question of coaptation calls up the matter of sutures and the character of material to be employed for the purpose. The substances suggested are numerous, but silk, gut and silver wire have been employed far more frequently than anything else. Where strength and absolute cleanliness are required, as in wounds about parts difficult of protection, the last named is particularly suited; where the sutures are to be buried and should be absorbed, the second is valuable; while silk has been used as a general suture to be employed in almost all circumstances. Under all circumstances these ligatures should be perfectly sterilized; if they have not been thus prepared and preserved in some antiseptic solutions, it should be carefully seen to that they be well boiled for 15 or 20 minutes, and then kept in a carbolic or bichloride of mercury solution until the moment of use. As to the plan of the sutures, the position and nature of the wound must determine; perhaps that form which is most frequently advisable is the ordinary interrupted one, each suture being made and tied separately along the edges of the wound, although there are circumstances where the uninterrupted, the ordinary overhand stitch, the quill suture, and a number of others, may each exhibit special advantages. In many superficial wounds, too, mere pressure, as from a packing of sponges, or from a proper adjustment of adhesive bands, is sufficient to maintain the proper co-

aptation. Or it may be necessary to combine these resources, suturing the edges, and by pressure from sponges or pads, keeping the deeper cut surfaces in contact.

To carry out the fourth indication, immobility of the wounded part is of first importance, and its position next. The position is always selected so as to give ease to the patient, relaxing the wounded tissues and guarding against the separation of the cut edges, to favor as much as possible the circulation in the part. These questions are of course to be considered in their proper relation to the establishment of drainage and the other indications for treatment. The fixation of the part is to be accomplished by the application of any suitable "fixed" dressing, as a splint, or stiffened bandage, or plaster or silicate cast dressing.

Most trivial, shallow wounds may be closed without provision for the escape of matters of disintegration; few deep ones may be permitted to heal without proper drainage. The products of tissue break-down and of bacterial activity (providing the wound is infected), are not to be allowed to be absorbed lest the various surgical fever symptoms may be developed; free means of egress must be provided for them as rapidly as they are formed. For this purpose the various drainage apparatuses have been devised. The most commonly employed is the rubber tube, with numerous openings in its walls to permit the juices of the wound to drain readily into it at all points; a glass tube similarly perforated is in protected positions even better, because more easily cleansed. Sometimes strands of sterilized cat-gut or horsehair are employed, or bands of lint properly prepared. Whatever the character of the drainage measures, care is to be taken that they do not act in any more irritating manner than necessary; the tubes should not be larger than there is actual need, nor should they extend any deeper than there is necessity. As rapidly as the healing process progresses in the deep parts of the wound, the drainage tube is to be withdrawn and cut away; and, as a rule, a number of short tubes are to be preferred to one long one. The external openings of the drainage tube are to be protected—not sealed—so that infection from without may not be carried into the wound through this channel, but at the same time the covering should be of such a material as to cause it to rapidly absorb, from the end of the tube, all discharges from the wound; and such a covering is to be removed frequently and replaced by fresh material.

Most wounds require some covering to protect them from all outside prejudicial influences. Perhaps in no other class of wounds than those of the face are coverings so rarely required, and probably from the contemplation of these, healing so readily without dressing, was the so-called "open" treatment of wounds originated. Nevertheless, in the vast majority of wounds, this mode of procedure is discountenanced by experience, and the best results are obtained by the use of some of the various forms of dressing. The author has for some years been in the habit of dressing wounds with dry absorbent lint, or with lint soaked in a mixture of one part of terebene and three parts of olive oil, covering the oiled lint with a piece of dry lint and fixing the whole with a bandage, taking care in all cases to leave room for the drainage. PROF. BRYANT does not approve of wet applications except they be medicated, simple wet dressings favoring decomposition, in his opinion.

When the second dressing shall be applied, depends upon the circumstances of each case and the thoroughness of the first dressing. Provided the care in cleansing the wound and in fulfilling the other indications mentioned has been complete, one should not expect to dress the wound a second time in less than one week, except attending to the frequent removal and renewal of the absorbent lint about the drainage tube. When this becomes necessary the surgeon should have all his appliances at hand, instruments, lint, bandages, medications, medicated solutions, syringes, etc. A piece of gum cloth being spread beneath the wounded part, the external dressings are carefully and gradually removed; then the deeper parts are removed cautiously, and if glued to the skin or surfaces of the wound are softened and loosened by gentle streams of medicated water being poured over them. All the dressings removed, the wound is again carefully cleansed; if closed, by passing the antiseptic solutions through the drainage apparatus and through any adventitious openings. This thoroughly accomplished, the same sort of dressing as first applied is renewed. Where the wounded part is fixed by splints or by some other means these are of course not to be removed; in the application of fixed dressings to wounds some arrangement by which the wound may be approached for dressing should be provided.

In the treatment of *contused*, *lacerated* and *open wounds healing by granulation*, the same indications are to be fulfilled, save the coaptation of the edges. Here particular stress is to be laid upon the ne-

cessity for cleansing the wounds and for providing proper drainage. In the case of *punctured wounds*, where the instrument inflicting the wound is clean and sharp, the wound may generally be treated as a simple incised wound. Where, however, the wound is infected by the uncleanness of the penetrating instrument, thorough drainage is an absolute necessity, as well as thorough cleansing. In no way can these objects be so well attained in such instances as by a free incision, laying open fully the punctured tissues, and then treating upon the usual plan.

ANTISEPTIC TREATMENT.

Since the formation of pus has been generally attributed to a septic or fermentative impulse imparted to it by the presence of organic germs derived from the circumambient atmosphere, the search for and application of modes and agents to prevent the access or destroy the vitality of these germs constitute a prominent feature in surgical therapeutics. Very different methods and agents have been resorted to for this purpose, constituting the various measures of the *antiseptic surgery* of the present day. Of these, that proposed by Sir JOSEPH LISTER of London ranks first in importance because of its precedence in time. So tremendous an impulse has been given modern surgery by the teachings of this master that the distinctive names "Listerism" or "Listerian surgery" are frequently applied to the antiseptic measures inaugurated by him. In the original method of LISTER the antiseptic preferred was carbolic acid, but this has been practically discarded, first for bichloride of mercury, and still more recently for a double cyanide of zinc and mercury. Carbolic acid was put aside because of its volatility, its irritative and occasionally toxic effects, and its great slowness as a disinfecting agent. Corrosive sublimate possesses in a high degree germicidal properties, and is very rapid in its action, but is extremely irritating, and forms a precipitate with the albumens in the tissues of the wound. The red iodide of mercury was also used by LISTER in the perfecting of his antiseptic dressings, but was discarded because of its irritant influences, sometimes leading to the formation of blisters.

Since the demonstration by the earliest methods of LISTER of the value of antiseptic precautions in the performance of operations and

the necessity of absolute cleanliness in the treatment of wounds, numerous modes of procedure and disinfecting agencies have been proposed all over the world. Nevertheless the position of pre-eminence should constantly be accorded to LISTER and his methods—although doubtless many of the procedures designated by other authorities are quite as valuable in their results of mitigating the disasters met in the course of surgery.

SIR JOSEPH LISTER, LONDON.

The account of the method as originally practiced has been published in this work in its former edition, and is in the present editor's judgment still of sufficient importance to justify its re-insertion for comparison with the remodeled method as used at present.

Old Listerian Method.—The apparatus required by this teacher was extensive, and his method full of minutiae. The antiseptic agent he preferred was carbolic acid, which he employed as follows: A vessel was at hand with a solution of one to forty parts for the immersion of the hands of the operator, the instruments and sponges; a steam atomizer threw a spray of about the same strength over the part, etc., during the operation or dressing; carbolized catgut ligatures were used for ligating the arteries; carbolized gauze, fine gutta-percha tissue, india-rubber drainage tubes, and carbolated oil silk were employed for dressing.

With these at hand, he directed the surgeon to proceed as follows: (1) Shave the part, if there is much hair, in order that the antiseptic may not be prevented from acting upon the skin; (2) wash the part with a watery solution (1 to 20) to purify the skin; (3) direct the spray upon that part, and maintain its action and position during the entire operation and dressing, without a moment's interval; (4) immerse the hands, instruments and sponges in the 1 to 40 solution before operating, and at every interval of the operation, when they are not enveloped by the spray; (5) tie all vessels with antiseptic catgut, and cut the ligatures at the knot; (6) place the drainage tube or tubes so deeply in the wounds as to drain all accumulating fluids; if the tube enters obliquely, cut the outer extremity obliquely; lay the retaining threads on the surface; (7) if the wound is to be closed, as after amputation, use carbolized silk for sutures, as it is very superior to wire, not only on account of its perfect suppleness, but because its actively antiseptic character insures absence of putrefaction in the track of the wound; (8) if strapping is required, com-

mon adhesive plaster may be rendered antiseptic by dipping it for a second or two in the watery solution of the acid, and it is most convenient to have the lotion hot; the ends should be overlapped by the gauze; (9) apply to the cicatrizing part a layer of the oiled-silk protective, dipped in the watery solution, and having a hole for the drainage tube; (10) apply eight layers of the gauze, of such size as to cover all the wound and the adjacent parts; dip the first layer in the solution; between the last two layers place a piece of mackintosh of smaller size than the layers of gauze; apply the lower layer so as to cover in completely the mackintosh; (11) retain the dressings by bandages of the antiseptic gauze, over which elastic webbing may be applied when the bandage is not sufficient, as in wounds or abscesses of the groin. Inspect the wound on the day after its infliction, whether it be accidental or the result of operation, and change the dressing only in case the discharge is liable to extend beyond the edge of the folded gauze; during the subsequent progress of the case, leave the gauze undisturbed for periods varying from two days to a week, according to the diminution of the effusion. In re-dressing continue the spray uninterruptedly on the part; while the bandage is being cut or removed, the patient, or an assistant, keeps his hand over the site of the wound, to prevent the dressing from rising *en masse*, and pumping in septic air; in raising the folded gauze, take care that the spray passes into the angle between it and the skin; remove the drainage tubes, cleanse them in the carbolic acid solution, and before re-introducing them cut off such portions as the granulations in the wound render necessary to bring the external extremity flush with the surface of the skin; lay aside the gauze which is soaked, but use the mackintosh again after cleansing it with carbolic acid solution.

A very important part of the treatment was the provision made to secure a free escape from the wound or abscess cavity of all secretions. This is effected by the introduction of india-rubber drainage tubes of sufficient calibre, and provided with a sufficient number of lateral perforations to secure a ready escape of all fluids. When applied to fresh-cut surfaces, the carbolic acid, by its stimulating properties, excites an abundant secretion, which if retained within the wound cavity would be a serious source of danger, whence the special necessity for drainage; and in the treatment of abscesses the use of the drainage tubes is insisted on to avoid tension of the abscess walls by accumulation of pus—tension being, according to Mr.

LISTER'S view, a most potent source of continued suppuration and constitutional irritation.

The formulæ for the various antiseptic preparations employed in connection with the old Listerian method are as follows:

Carbolized Oil :

58. R. Acidi carbolici crystalisati, \mathfrak{z} i
 Olei lini, f. \mathfrak{z} iv.
 Dissolve.

Carbolized Putty :

59. R. Olei carbolati (above), f. \mathfrak{z} iij
 Cretæ preparatæ, q. s.
 To make a firm paste.

Antiseptic Lac Plaster :

60. R. Shellac, \mathfrak{z} iij
 Acidi carbolici crystalisati, \mathfrak{z} j.
 Heat the lac, with one-third the acid, over a slow fire; when completely melted add the remainder; mix, strain and spread.

Antiseptic Gauze :

61. R. Paraffini, \mathfrak{z} xvj
 Resinæ, ix
 Acidi carbolici crystalisati, \mathfrak{z} j.
 Melt together. Muslin gauze is dipped in the melted mass, and well wrung or pressed while hot.

Antiseptic Adhesive Plaster :

62. R. Acidi carbolici crystalisati, \mathfrak{z} j
 Aquæ bullientis, f. \mathfrak{z} viij. M.
 Dip ordinary strapping in this, and let it dry.
63. R. Acidi boracici,
 Cere albæ, āā \mathfrak{z} j
 Paraffini, āā \mathfrak{z} j
 Olei amygdalæ dulcis, āā \mathfrak{z} ij.
 Melt the wax and paraffin, stir in a warm mortar till the mass thickens, then cool, and reduce in a cold mortar to a soft ointment. Apply on fine rags to exposed ulcerous surfaces.
64. R. Plumbi oxidi, \mathfrak{z} iv
 Acidi carbolici, \mathfrak{z} vj
 Olei olivæ, f. \mathfrak{z} iv
 Cere, \mathfrak{z} j. M.
 This plaster is to be prepared without water, and spread upon a thin cloth. To be applied as a dressing for wounds which need disinfection.

LISTER was in the habit of using as an antiseptic agent in super-

ficial wounds a watery solution (3 to 5 per cent.) of boracic acid, a less rapidly evanescent substance than carbolic acid. In sloughing and suppurating surfaces, he recommended a solution (40 grains to the ounce of water) of chloride of zinc, as in ulcers, in sinuses, and in cases where there is danger of suppurative infection of the body cavities from their nearness to the point of change.

Benzoated or salicylated gauze or wadding may be prepared by adding 3 to 4 parts of castor oil to the solution, for every 10 parts of benzoic acid; 100 grammes of benzoic acid and 40 grammes of castor oil (or 20 grammes each of castor oil and resin,) are dissolved in 2.36 liters (2360 cc.) of alcohol, the gauze soaked in the liquid and then dried. This gauze contains a 10 per cent. solution of benzoic acid. The salicylated gauze is prepared in the same manner.

Mr. E. W. ELKAN writes to the *Maryland Medical Journal*, February, 1879, that Lister's bandages may be made thus:

65. R.	Boiled linseed oil,	f. ℥ iv
	Yellow wax,	℥ ij
	Rosin,	℥ iv
	Spts. turpentine,	f. ℥ viij
	Calvert's carbolic acid, No. 2,	f. ℥ j.

Melt the oil, wax and rosin together over a water-bath, and add the turpentine and carbolic acid. Then take a piece of tarlatan sixteen yards long by two yards wide, and immerse it in this menstruum, while still fluid. Then pass it through an ordinary clothes-wringer. Pass it through the wringer three or four times, or until no more of the mass can be squeezed through, then fold it and wrap it in oiled silk or carbolized paper, and preserve it in a tin box carefully excluded from the air, to prevent the evaporation of the carbolic acid.

The process above described will yield a material which is soft, pliable, and does not become sticky when brought in contact with the body.

The New Listerian Method.—Recently (*Brit. Med. Jour.* November 9, 1889; *Amer. Jour. of Med. Sc.*, January, 1890), Sir JOSEPH LISTER has published an account of the antiseptic method now employed by him. Having in mind the undesirable qualities of carbolic acid, bichloride and biniodide of mercury, he was led to look further for an antiseptic agent to fulfil the demands; this, he believes, is to be found in the double cyanide of zinc and mercury. This substance is non-volatile, almost entirely non-irritating, nearly insoluble in water, only soluble in 3000 parts of blood serum, and possesses high inhibitive power to the growth of micro-organisms. It is not so strongly germicidal as is desired, but this deficiency is made up by adding a small percentage (1:4000) of corrosive sub-

limate, enough to have disinfectant properties but not to be markedly irritative. The dressings used in the treatment of wounds, the antiseptic gauze bandages, etc., are all made up by impregnation with this salt of mercury. The preparation of the gauze is thus explained by Dr. J. WILLIAM WHITE, of Philadelphia, a strong advocate of the most advanced Listerism, in the journal last mentioned above. The gauze comes in pieces of six yards each in length (the ordinary cheap cheese cloth answers very well, the loosest form), and should be prepared as follows, the preparations being those necessary for the impregnation of twenty pieces of that length. The texture has been previously washed and well rinsed in clear water and dried without starching or any special preparation. A mixture of the zinc and mercury salt and of water is made in the proportion of 800 grains of the former to 28 pints of the latter. The gauze is drawn through this mixture slowly. LISTER uses a deep trough with a bar near the bottom, beneath which the gauze must pass, thus ensuring its submergence. As it passes out of the trough it is drawn over the edges tautly, so as to squeeze the most of the solution out of it. It is then placed in a bath composed of starch, 400 grains, boiling water three pints, mixed together and diluted by the further addition of 11 pints of cold water and 15 pints of a 1:1000 corrosive sublimate solution. This starch-bath serves to fix the cyanide, which would otherwise fly off as an impalpable powder when the gauze becomes dry; the bichloride is added for its germicidal properties.

Another and more simple method commended by LISTER is as follows: A solution of starch is mixed directly with the cyanide of zinc and mercury, and after this with sulphate of potash, which is inert, but used because of the mechanical effects of its gritty particles. Or, 800 grains of the cyanide are stirred into a strong solution of starch (made almost pasty with warm water); add two or three tablespoonfuls of sulphate of potash, and allow the mixture to dry. When it is dry it is to be powdered and mixed with a 1:4000 solution of corrosive sublimate of sufficient quantity to allow the full immersion of all the gauze. The gauze is then dried and rolled into bandages or pads, and kept in a proper jar between cloths.

The dressing of the wound by the present Listerian method consists in the application immediately over the line of the wound of six or eight layers of this gauze, out of which the corrosive sublimate has been washed by wringing it out once or twice in a 1:20 solution of carbolic acid. This leaves the gauze filled with the cya-

nide, the carbolic acid volatilizing. Over this, moist pads of the gauze are placed, extending some distance from the line of the wound, then whatever dressings are required for pressure, or a layer of dry absorbent cotton impregnated with corrosive sublimate, and then the bandages.

In his address before the International Medical Congress held at Berlin (*Brit. Med. Jour.*, August 16, 1890), LISTER states that he has the greatest confidence in the above-described cyanide of zinc and mercury dressing. In the actual treatment of the wound before applying the dressing, he says it has been his practice for some time to first wash the wound, after controlling hemorrhage, with a strong solution of bichloride of mercury (1:500) following it by irrigation with a weak solution (1:4000) while putting in the stitches. He expresses himself as ashamed of having ever seriously proposed the carbolic spray to kill the micro-organisms in the atmosphere during the operation. In the address he did not disapprove of, although neither did he plainly commend, in operations, the dispensing with irrigation with the antiseptic solutions. Irrigation done away with, there would be little demand for drainage, as the serous discharges from the wound are largely induced by the strong antiseptics, or by the decomposition of the cells, which are destroyed by their action.

This address of LISTER'S was attacked shortly after by LAWSON TAIT, who with a number of others hypercritically array themselves in opposition to the LISTERIAN school as the school of *aseptic* surgery. He absolutely opposes the use of antiseptic solutions, irrigation of wounds, and the necessity for highly antiseptic dressings; relies entirely upon absolute cleanliness. To an unbiased mind the similarity of this faction, or of its teaching, to that of the older doctrine must be apparent. Aseptic surgery is but the natural outcome of endeavors toward thoroughness in antisepticism. Both are pursued for the exclusion of pyogenic and other micro-organisms, and whereas the latter recognizes only an effort to prevent the entrance of such germs into a wound, and condemns the measures of the former, antiseptic surgery not only works for the exclusion of these noxious factors, but also for their expulsion if by accident they have gained entrance. Asepticism is possible only when all the conditions are in the hands of the surgeon; given a wound produced under other circumstances than by the knife of the operator, aseptic treatment is usually impossible, and antisepticism only available. LISTER

is not averse to doing away with the irrigation and washings of the wound in an operation, if all the instruments, the operator's hands and those of his assistants, the surface to be operated on—everything, in fact, has been rendered positively sterile. Aseptic surgery simply differs from the teachings above expressed in endeavoring to avoid all strong antiseptic solutions which might to a greater or less degree harm the vitality of the tissues operated on. Instruments, silk, ligatures and all substances coming in contact with the wound must be sterilized by heat. The operator, his assistants and the patient must be absolutely clean, and after washing in disinfectant solutions, rinse off the latter with pure sterilized water. All clothes are to be absolutely clean; and if antiseptics are used they must be very weak. To the editor's mind the difficulty in providing all these conditions is sufficient reason for the defense of the older system—but not to the exclusion of the new.

From the above expressions as to the relations of antiseptics and asepsis, the editor would have it clearly understood that no other inference than this is to be made: that where it is possible asepsis is to be sought for, and where the surgeon in charge has entire control of all circumstances and can prevent all possibilities of wound infection, it may be relied upon; in all other cases of operation and in all accidental wounds asepsis cannot be hoped for and every antiseptic measure is to be employed to overcome the infection which has not only possibly but probably taken place. GERSTER, of New York, (*Amer. Jour. Med. Sci.*, 1891) in an article comparing asepsis and antiseptics, after insisting upon the unity of the idea underlying each and the fact that the former is but the natural product of development of the latter, closes thus: "although incisive changes have befallen the means employed, the principle upon which the discipline was grounded remains unshaken. The living spark of truth has survived the pedantry and over-zeal of the advocates as well as the sneers and contempt of the opponents of the new departure. Its blessings have soothed and removed untold suffering and misery—have saved, I might say, millions of lives. For all this humanity is indebted to one man, whose intellect pierced the deadly mists that overhung the practice of surgery. That to the activity of the surgeon, though it still remains surrounded by grave responsibilities, was added a vastly increased element of pleasure, the *gaudium certaminis* against disease and death—for this gift to his fellow-surgeons, we are indebted to SIR JOSEPH LISTER."

The conditions which must be established in order to confidently rely upon the absence of infection must include, the absolute chemical cleanliness of the walls, floor and furnishings of the room of operation, the absolute sterility of all clothing and clothes to be brought into contact with the patient, the thorough purity of the skin of the patient, especially about the seat of the operation, the chemical purity of the operator's person, especially of his hands and fingers and fingernails, the same condition for all of his assistants, the sterility of all instruments, ligatures, sutures and dressings, sterility of all water and solutions used, absence of all sponges and substitution of aseptic wads of sterile cotton bound in sterile gauze. In brief every possibility of the transference of infection is to be avoided. The walls and floor should be sterilized by solutions of bichloride after thorough washing with soap and water; the clothes should be washed and wrung out of an antiseptic solution and again out of a clear, pure water and dried. The instruments and ligatures should be sterilized in boiling water; so too all cloths to be used about the wound. The operator and his assistants as well as the patient should have taken a full antiseptic bath, and have been rinsed off with clean, boiled water. The hands of the operator and his assistants should be washed in bichloride solution and again in boiled distilled water; the finger-nails should be thoroughly cleansed and sterilized, the surface about the proposed wound washed first with soap and water, then with a bichloride solution and finally with boiled distilled water. All the dressings should have been sterilized previously by heat. During the operation no antiseptic solutions of any strength are permitted, as they usually have an untoward effect upon the surfaces of the wound, coagulating the albumen of the tissues, as does corrosive sublimate, and leading to excessive discharges. Boiled distilled water should be used instead, and the wound rendered perfectly free from clots of blood or liquid blood before the edges are united. The dressing under these circumstances may consist of, first a layer of sterilized cotton or lint, wrung out of boiled distilled water, covered with several dry layers and then bound in with antiseptic gauze bandages or simple clean ones. In these wounds drainage as a rule is not provided for and healing by the first intention is expected.

Before classes and in most private houses such an ideally pure condition of all surroundings is not to be obtained; and for the general practitioner by far the safer mode of procedure is the anti-

septic one, as described above, or as indicated by the various authors to be quoted.

Of the various antiseptic agents by far the greatest germicidal effect is possessed by the bichloride of mercury, heat alone possessing as thorough a power of sterilization. It has long been known to occupy this position as the principal germicide. But

DR. ERNEST LAPLACE, OF PHILADELPHIA,

has called up an important objection to its employment in contact with the albumens of the tissues or in albuminous solutions (*New Orleans Med. and Surg. Journal*, 1887), in that it coagulates the albumen. In wounds, this, of course, is a serious fault, the coagulum adding to the impediments of regeneration and contributing to the discharges. The blood in wounds is thus precipitated in considerable coagula; nor are these clots in any sense of any antiseptic value. In order to obviate this, Dr. LAPLACE, then working in ROBERT KOCH'S laboratory, conceived the plan of rendering the bichloride solution acid, and fully demonstrated the applicability of the method and its value. He advises that to every 1000 parts of a one per mille (1:1000) solution of corrosive sublimate, 5 parts of hydrochloric acid be added. The addition of the acid is said by Dr. LAPLACE to increase the germicidal properties of the bichloride solution so that a relatively weaker solution is required. As a later suggestion, Dr. LAPLACE recommends (*Jour. des Connais. Méd. Prat. et de Pharmac.*, 1888) the following solution as better fulfilling the same desideratum:

66. R.	Hydrargyri bichloridi,	I	
	Acidi tartarici,	20	
	Aquæ destillatæ,	1000.	M.

For antiseptic dressing he advises that the bandages, gauze, lint and cotton be placed into a somewhat stronger solution:

67. R.	Hydrargyri bichloridi,	5	
	Acidi tartarici,	20	
	Aquæ destillatæ,	1000.	M.

The dressings should remain in this solution several hours and then be dried partially and kept in a clean, closed jar.

These solutions, particularly the tartaric acid solutions, have been received by the profession with considerable favor, and are undoubtedly of great advantage in preventing some of the coagulation in wounds and consequently much of the undesirable discharges.

DR. F. BRAMANN, OF BERLIN.

This gentleman, an assistant in VON BERGMANN'S clinic, reports the results of the treatment of wounds (*Archiv. f. Klin. Chirurg.*, 1887; *Amer. Jour. Med. Sci.*, January, 1888) in this clinic for some years. The dressings are those generally employed in antiseptic surgery. The gauze is sterilized by means of steam heat, and after drying is impregnated with a solution of bichloride of mercury. In trifling wounds the simple sterilized gauze, without antiseptic impregnation, is employed; but in larger wounds the bichloride gauze is always used. The cotton employed is merely sterilized by steam. The towels, gum cloths, sponges, etc., are treated in a like manner. The silk for sutures is kept on glass or metal spools, sterilized by steam, and kept in metal cases. The catgut used for the deep sutures and for ligatures is kept for ten or fourteen days in a solution :

68.	R.	Hydrargyri bichloridi,	4	
		Alcoholis,	800	
		Aquæ destillatæ,	200.	M.

This solution is frequently renewed, and finally kept in a similar solution in which but one part of corrosive sublimate is present, the alcohol and water remaining in the original proportions. The patient is given a full bath, the part to be operated carefully and thoroughly washed with soap and water and shaved. The skin over the part is then bathed with ether and disinfected with a solution of bichloride (1 : 200 to 1 : 1000). The instruments are kept in a solution of carbolic acid (1 : 20 to 1 : 40). Irrigation of the wound during the operation is often performed, with a 1 : 2000 bichloride solution. In operations in cavities where there is danger of retention and absorption of the corrosive sublimate solution with serious effects, salicylic acid solutions (1 : 1000) or boracic acid solutions (1 : 200) are employed, and at the end of the operation an ethereal solution of iodoform is generally used for washing the wound.

Particular care in the stopping of all bleeding is regarded as necessary to the best results. When all bleeding can be checked and the wound can be regarded as thoroughly aseptic, free from the suspicion of infection from previous suppuration, unclean instruments, hands or dressings, the practice in this clinic has been to close the wound without drainage. This is possible only in strictly conducted operations. Where the bleeding cannot be quite overcome, where it is impossible to get the wound quite dry, and free from every sus-

picion of septic contamination, after washing it with a 1 : 1000 solution of bichloride and the application by means of a syringe of an ethereal solution of iodoform, the wound is lightly tamponed with strips of iodoform gauze several feet in length and 3 or 4 inches wide. These strips may be made by steeping the sterilized gauze into an ethereal solution of iodoform and then drying them. The tamponed wound, with the edges unsutured, is covered with sublimate gauze and cotton and an antiseptic bandage. The iodoform gauze is permitted to remain in the wound several days, but the superficial dressings may be changed if the discharges soak through them. The gauze is then carefully and gently removed, and usually the wound will be found dry and clean, with probably not a single bleeding point. The sutures are now to be introduced, with or without provisions for drainage, and the superficial dressings reapplied. Anæsthetization for this suturing is of course necessary.

Under such care the results in VON BERGMANN'S clinic are exceedingly satisfactory, the infection of wounds being very rare.

In the second journal above referred to occurs a reference to the recommendation of GEDEKE (*Centralbl. f. Chirurg.*, 1887) of antiseptic dressings made of ordinary filter paper, sterilized and soaked in a two per cent. solution of corrosive sublimate. Such a dressing is particularly advantageous in wounds about the fingers, etc., as the paper renders the part immobile.

SCHMID (*Centralbl. f. Chirurg.*, 1889; *Amer. Jour. Med. Sci.*, 1889) closes his wounds immediately and discards drainage. Should there occur symptoms of tension or suppuration he removes the dressing, takes out a stitch and opens the wound. The site of operation is covered for twelve hours with moist sublimate compresses, and finally washed with ether and bichloride solution. In every phase of the operation the wound is covered with sublimate sponges, but there is as little irrigation and sponging as possible. All bleeding is carefully stopped, the wound is then flushed with bichloride solution, dried and dusted lightly with iodoform and approximated throughout. A compression sponge is applied, iodoform, mull and a moss pillow. The dressing is completed by a firmly applied bandage, which can be loosened if painful. Where pressure is not necessary salicylated collodion painted over the skin sutures and line of operation will suffice. For infected wounds SCHMID advises free opening, drainage by means of iodoform gauze and antiseptic poultices.

PROF. A. P. GERSTER, OF NEW YORK.

In the article whose conclusion is quoted above in reference to the honor due LISTER for the introduction of the principles of the present system of surgery, Prof. GERSTER marks in a clear and comprehensive manner the duty of the surgeon in the practice of those principles. After remarking the origin of LISTER'S ideas in the work of PASTEUR, the adoption by the former at first of carbolic acid as the best means of combatting the germs of disease and his subsequent change of opinion, our author urges the extreme value of the razor, soap, a good stiff brush and water. These, if thoroughly used, are even more valuable than any of the chemical sterilizing agents, removing the "lumps of dirt" in the skin and elsewhere which the antiseptic agents are not apt to penetrate and which are fully charged with the germs sought to be destroyed. The field of operation, then, is first to be carefully shaved, and then thoroughly washed with a good stiff brush with soap and water. After this the use of a chemical sterilizer, as a bichloride solution, may well be commended, as more readily able to penetrate to the germs which may still be harbored in the deeper recesses of the skin. Next in importance to thoroughly cleansing the field of operation is the question of the sterilization or purification of the hands of the operator and of his assistants. These precautions he insists upon: "The nails should be kept trimmed short; the hands are to be scrubbed with brush and soap in hot water for one minute, especial care being paid to the subungual spaces, which then are to be scraped carefully with a nail-cleaner, the hands to be immersed for another minute, first in strong alcohol, then in a 1:1000 solution of corrosive sublimate. Subsequently the hands are not to be brought in contact with anything not also sterilized; or if this have been necessary (as, for instance, if the finger must be inserted into the rectum, vagina or oral cavity, for verification) the same procedure must be practised before proceeding with the operation. The instruments should first be cleansed with soap, water and brush, then boiled for five minutes in a covered vessel containing a watery solution of washing soda 1:100 (one heaped tablespoonful to the quart of water). The soda is not added for its antiseptic effect in sterilization, this being accomplished by the heat, but prevents the rusting of the instruments. The brushes used in these various cleansing operations should be also sterilized before using by boiling them in this solution of soda for five minutes and keeping them in a 1:1000

solution of corrosive sublimate. All brushes kept in the surgeon's case should be treated thus before use, at least in so far as the boiling in the soda solution is concerned. In the choice of dressings the author prefers highly absorbent and rapidly drying materials rather than the resinous gauze of LISTER. In the preparation of these materials, if demanded extemporaneously, the best method is by boiling for ten minutes in a solution of soda or potash. Well wrung out, the dressings can be used at once. For the sterilization by steam he describes an apparatus, known as Lautenschlager's steam sterilizer, which consists in brief of a double walled boiler, the space between the walls to contain water, with properly applied gauge and stopcock, and communicating near the rim of the vessel by a number of apertures with the inner receptacle. In the latter the dressings are placed in open-work metal boxes, and the receptacle closed with an impermeable and closely clamped lid. At the lower portion of this inner vessel is an opening through which the steam entering above from the outer boiler, passing down through the articles to be sterilized, escapes, and is conducted to a bucket of cold water, where it is condensed. The heat is applied directly under the boiler, and the necessary articles having been placed in the sterilizing apparatus, the fires are lighted and kept burning for 45 minutes after the thermometer inserted through an aperture in the cover registers 100° C. (212° F.) The cheap gauze and absorbent cotton dressings thus prepared are very much more easily prepared, are cheaper, and are probably better prepared than where so much handling in solutions perhaps imperfectly made, and drying in contact with one knows not how many germs, are necessary. As for sponges the author recommends that ordinary Florida sponge be purchased, of a soft, elastic quality. It is first beaten well to free it from calcareous impurities, and then immersed in a dilute muriatic acid. Traces of the acid having been washed away, the sponges are left two days in water to afford any spores time to develop into adult bacteria. The sponges are then kneaded by hand, each for a minute, in plenty of hot water and potash or soft soap, which will soften any lumps of dirt in the deeper parts of the sponge, and open them to the action of germicides. After all soap has been removed, the sponges are thrown into a five per cent. solution of carbolic acid for twenty-four hours or more.

In operative technique the first great principle the author presents is to keep the wound clean and dry, by preventing bleeding as much

as possible through careful dissection. In an aseptic wound he eschews irrigation; but there are cases where irrigation is essential, and here rather mild solutions of antiseptics are preferable to strong ones. In wounds known to be free from infection he rarely uses irrigation, keeping them dry, keeping the dressings lighter and less cumbersome, less tightly applied, to the greater comfort of the patient; and the dryer the operation the dryer the course of healing. In operations in the abdominal cavity the author *never* uses irrigation, as if strong solutions are used the danger of absorption is too great, if the solutions are weak they simply help extend the infecting principle over the peritoneal surface. In dry, clean wounds the author makes no provision for drainage, covering over the surface with a bit of sterile gauze soaked in collodion, and usually leaving but a slight opening at one corner for the first oozing which rarely causes any swelling or discomfort. In wounds not so clearly aseptic he advises that the sutures be placed but not tied, and the wound packed with iodoform gauze for 48 or 60 hours, when the discharges will be found free from their sanguineolent appearances, and the wound practically dry. After this the wound edges are approximated. Where however acute progressive suppuration is being dealt with, drainage by tubes must still be adhered to.

SALICYLIC ACID.

Salicylic acid tampons, as employed in the German army, consist of pieces of soft gauze of about 13 or 16 square centimeters, which are loosely tied around 1 or 2 grammes of cotton, so as to be readily formed into any desired shape by pressure. One kilo of these tampons is impregnated with a solution of 110 grammes of salicylic acid and 40 grammes of castor oil or glycerine, in $3\frac{1}{2}$ or 4 liters of 95 per cent. alcohol. They are afterwards dried in a well-ventilated room, and are intended to be used in applying a temporary bandage until the services of a surgeon may be procured.

Salicylic acid has also been employed by Prof. LISTER. He prefers it, however, only when the dressing is to remain on a long time. In this he is not followed by one of his German disciples, Prof. THIERSCH, who uses it exclusively. It has also been extensively tried by

PROF. E. H. BENNETT, OF DUBLIN.

This surgeon urges the advantages of a combination of *carbolic*

and *salicylic* acids in dressings. (*Medical Press and Circular*, March, 1876.)

His experience has been that the *salicylic* acid dressings do not exert so marked an influence in controlling suppuration as carbolic acid, which is in a great measure due to the fact that it is non-volatile, and so does not penetrate the depth of wounds. It wants, too, the advantages that arise from the stimulating action of the carbolic acid, and so wounds progress rather more slowly under its action.

The spray of *salicylic* acid, though entirely odorless, is quite unfit for general use, as no one can resist a constant tendency to sneeze while exposed to it.

He has obtained a great number of completely successful results with *salicylic* acid alone, and does not hesitate to use it by itself in many cases—for instance in the treatment of burns.

The *salicylic* dressing he has found most convenient is that recommended by THIERSCH, made by saturating jute with the acid, 3 per cent. by weight, adding a little glycerine, $\frac{3}{4}$ iv-℥., which prevents the drying of the jute. He thinks great advantage attaches to the moist condition of the dressing; it is ready to absorb moisture, and if air be drawn through it, as in wounds affected by respiration, the moist threads serve, he is confident, as better filters than dry ones would. The advantage of addition of glycerine, according to THIERSCH, is that it prevents the dry acid from flying off in dust from the jute.

Nothing can be easier made or more readily applied than the jute dressing. He applies it beneath a few folds—generally three—of gauze, containing sheet gutta-percha, directly on the wound, except in cases where the support of a bandage is required directly on the flaps, etc. This mode of application, made under the carbolic spray, combines both acids, and the application of the jute next the wound prevents the irritation often felt from the gauze rubbing the skin.

Mr. CALLENDER, of London, who reported his use of it in the *Medical Press and Circular*, November, 1875, highly commends it. The following were the formulas he employed:

- | | | | |
|--------|---|------------------------------------|----|
| 69. R. | Sodii phosphatis,
Acidi salicylici,
Aquæ, | 3iij
3j
f. $\frac{3}{4}$ vj. | M. |
| 70. R. | Acidi salicylici,
Aquæ, | 3j
f. $\frac{3}{4}$ vj. | M. |

71. R. Acidi salicylici,
Sodii bicarbonatis,
Aquæ.

3j
3^{ss}
f. 3 xii. M.

The advantages of salicylic acid are that it is free from odor, and so far acceptable to the patients; that wounds heal under its influence, and, during the progress of the repair, are free from bad smells; that, unless strong with spirit, or but little diluted, it does not cause local pain. Its bad points seem to be these: that, above the strength of 2 per cent., it causes local irritation, with some constitutional disturbance; and if the patient, has a delicate skin, even the weak preparation is a source of trouble; that there is more discharge from a wound dressed with salicylic than where carbolic acid is used; that its influence upon a recent wound, as after an operation, is not so efficacious against the occurrence of decomposition as that of carbolic acid, chloride of zinc or of boracic acid; that the repair of a wound is less active, and the granulations, if any, are more flabby than when other simple or antiseptic dressings are employed.

BORACIC ACID.

Prof. SPENCER, of Edinburg, reports in the *Medical Times and Gazette*, April, 1876, very remarkable success with the *boracic acid* dressing, supported, no doubt, by careful constitutional treatment.

The boracic solution is prepared by pouring boiling water upon the pure crystals of boracic acid, allowing it to stand in a covered vessel till it cools, and decanting the clear liquid, adding more boiling water to dissolve any portion that remains. The acid is so sparingly soluble that there is not much fear of it being too strong. For use in dressings, say in an excision of the breast, the method is, after the wound has been thoroughly cleansed by pouring a stream of tepid carbolic lotion over the surface, and closed by sutures, two separate layers of lint which have been soaked in the solution, and wrung nearly dry, are laid over the line of incision and contiguous surface. At first the upper layer is occasionally removed, wetted, and re-applied, without moving the under layer next the wound, merely to keep that layer moist. Drainage-tubing is used to favor the escape of any blood or serous discharge, and to give an easy means of occasionally washing the wound gently out by means of a syringe. Unless there be bleeding, there is no need to disturb the deep dressing for twenty-four or even thirty-six hours. After the second day only a single bit of lint is used, covered with wax-paper.

The sutures are generally removed about the fourth day, but, before doing so, strips of strong adhesive plaster are applied between the stitches, so as to maintain the edges of the wound in apposition, and these straps should not be removed unless they become loosened or dirty. In most cases he leaves the sutures long, merely twisting them so as, if bleeding occurs, to allow the wound to be re-opened and all clots washed out. The surface is then cleansed, the edges of the incision closed by the sutures, which are then cut short, and the dressing applied; thus re-actionary oozing and its effects are guarded against, and primary union generally obtained. In regard to the comparative advantages of the boracic lotion or of the carbolized oil dressing, he prefers the former in cases of excision of tumors and joints, and in amputations when the soft tissues are healthy; but in cases of amputation or excisions of joints in which there are old sinuses and a diseased state of the skin, the oil dressings seem to meet the requirements of the case better, and are more easily applied and removed without causing pain. In using oil dressing he applies a narrow strip of waxed paper over the line of incision as a protection from the irritating quality of the carbolized oil.

CAMPHOR.

Dr. SOULEZ, of Romorantin, France, had advocated in *La Tribune Médical* (Dec., 1876,) *carbolated camphor* as a dressing.

72. R,	Acidi carbolicæ crystal,	grammes 9
	Alcoholis,	grammes 1
Mix and add—		
	Pulv. camphoræ,	grammes 25.

The product is an oleaginous pale-yellow liquid, with a feeble odor of camphor, and no odor of carbolic acid at all. It does not mix with water or glycerine, but does mix with olive and almond oils. The infusion of saponaria (100 grm. of the leaves of soapwort to 1000 grm. water) emulsifies it, as does also the alcoholic tincture of *quillaria saponaria* (alcohol at 90°, 1 liter; Panama bark, 250 grm.) When mixed with an equal part of the carbolated camphor, this tincture produces a mother emulsion, which, when weakened with water, is used to prepare the antiseptic wadding.

In dressing a wound, Dr. SOULEZ covers it first with a square of wadding, which is impregnated with a mixture of carbolated cam-

phor and olive oil. This must be large enough to extend $2\frac{1}{2}$ to 3 inches beyond the wound. This is then covered by six other layers of wadding, impregnated with the emulsion above mentioned. Each layer should be one inch wider than the one below it. A thin envelope of caoutchouc is then applied to prevent evaporation, and over this a layer of dry wadding, and the whole is then secured by a bandage. The author claims that this dressing is very easy of application; all the materials can be prepared beforehand, and kept in well-covered jars. Before applying it the wound should always be washed with the emulsion of carbolated camphor. The dressing possesses all the advantages and none of the inconveniences of LISTER'S method. When applied to a stump, for instance, it keeps it enveloped in a warm atmosphere saturated with vapor of water, which lessens the exciting effects of the oxygen of the air, and is protected by the numerous layers of soft wadding, which keep out all infecting germs. Dr. SOULEZ renews the dressing usually every six days, but sometimes leaves it on for ten days.

At the present day a proprietary article known as "*campho-phenique*" is before the profession as an antiseptic. It is regarded with considerable favor. Its composition is practically the same as the *carbolated camphor* of SOULEZ.

CHLORAL.

Dr. P. H. WATSON, of Edinburgh, who is senior surgeon to the Royal Infirmary, Edinburgh, has systematized the use of *chloral hydrate* as a dressing to wounds. He finds it quite as active as carbolic or boracic acid. At its first application it causes some smarting, which is soon succeeded by an agreeable, soothing sensation. It has a marked advantage over carbolic acid, on account of its pleasant odor. Dr. WATSON employs chloral in four forms:

1. A lotion of 5 to 40 per cent. in water, for cleansing away discharges around a wound, cleansing sponges used in operations, and analogous purposes.

2. An ointment composed of concrete paraffin, white wax (Scotch) and almond oil, to which $\frac{1}{2}$ to $\frac{1}{8}$ of charcoal is added, while the other ingredients are liquefied by heat. The components of the ointment should at once be rubbed together, covered, to prevent the evaporation of the chloral, and cooled to a concrete form as rapidly as may be. It is afterwards rubbed up with a few drops of the solu-

tion of chloral, to disintegrate it, and prevent its crystalline form from being re-assumed. It requires great pains to make this ointment efficiently. The ointment is applied spread into the substance of linen cloth, so as to be incorporated with the material. This dressing forms the immediate application to the surface around the wound, and covers in the wound itself. It does not adhere, but peels off like a thin layer of wax.

3. An external excipient dressing is made by soaking lint in a solution of chloral (5j-5j). It is then wrung out of this and carefully dried. Care is necessary to avoid long exposure or a high temperature, as this volatilizes the chloral.

4. Lint soaked in a solution of chloral in olive oil ($\frac{1}{8}$), employed to fill cavities, such as those left in some excisions, and to employ as compresses, when it is desired, to prevent bleeding from the cut surfaces in operations for the removal of *dead* bone.

In some cases, when the chloral appears to act as an irritant, even when carefully prepared, it may be necessary to interpose some impermeable material between the line of operation and the dressing.

He has never met with any disagreeable results from the absorption of the chloral. On the contrary, the pain of recent wounds is satisfactorily modified and relieved by its employment. (*Edinburgh Medical Journal*, February, 1876.)

LEAD LOTIONS.

Mr. JONATHAN HUTCHINSON, of London, recommends (*The Lancet*, May, 1875,) the following plan for treating operation wounds as one eminently satisfactory, from the cooling and antiseptic properties of *lead lotions* :

No blood should be left in the wound, nor should there be any danger of bleeding. To this end, use all the silk ligatures that are necessary, and leave the wound open an hour or two, rather than close it while there is still oozing. A drainage tube left in the most dependent portion of the wound is a safe precaution. In the case of removal of the breast, make a counter-opening at the most dependent part, and insert a drainage tube, to be removed on the third day. Coapt the edges of the wound carefully with numerous fine stitches. Great care should be taken that none of the latter are tight, and they should all be taken out on the third or fourth day. After the sutures, narrow strips of plaster should be applied, and remain on for five or six days. The essential feature in the plan is

to keep the parts cool by the systematic application of a lead-and-spirit lotion, as follows :

73. R.	Liq. plumbi subacetatis, Alcoholis, Aquæ,	f. $\frac{3}{4}$ ss f. $\frac{3}{4}$ iss Oj.	M.
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After the wound has been sewed up, as above directed, apply over the plasters, a lint compress wet with this lotion, and over this a mass of cotton-wool, which is kept in place pretty tightly by a flannel bandage. This is applied to prevent oozing, and should be taken quite away in from six to twelve hours, when an ample fold of lint, wet with the lotion, should be applied over the wound and surrounding skin, and the nurse should have emphatic directions to re-moisten it every quarter or half hour, according to the rate at which it dries. The skin ought to become whitened by deposit of lead. No bandage or other dressing is necessary, and the lotion should be continued without intermission until the wound is perfectly sound—a week, or two weeks, as the case may be.

If one is obliged to leave a portion of the wound open, the lotion may still be used, and is even more necessary.

Another surgeon, Dr. JAMES LAWRIE, of Glasgow, commenting on this plan, (*Lancet*, July 10th, 1875,) prefers the following solution :

74. R.	Plumbi acetatis, Aquæ calcis, Aquæ,	gr. x-xx āā	f. $\frac{3}{4}$ ss.	M.
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This he uses as a dressing to wounds, burns, ulcers, etc. There is no danger of lead-poisoning, and it brings about rapid subsidence of pain and prompt healing.

TEREBENE.

Terebene is an aromatic hydrocarbon, with marked deodorant and disinfectant powers. It has been largely used as a dressing by

MR. H. C. WADDY, M. R. C. S., ENGLAND,

Surgeon to the Gloucester County Infirmary. His use of it in excision or resection wounds, for instance, is as follows: Bleeding having been stopped by torsion of vessels, the wound is washed with terebene and water,

75. R.	Terebene, Water,	f. $\frac{3}{4}$ j Oj.
Shake well together.		

All bone-dust and blood-clot being removed, and the skin of the limb cleansed, pure terebene is poured freely over the surfaces of the wound, and all crevices filled with it. The limb is placed on a common wooden back-splint, with foot-piece properly padded, and strips of strapping fix the thigh, leg and foot to the splint.

The edges of the wound are adapted with the fingers, and strips of lint soaked in terebene (pure) are passed tightly round the limb to maintain them in apposition, plenty of terebene being poured between the surfaces of the wound. No ligatures or sutures are used.

Cotton wool is applied outside the lint, enveloping the entire limb from toe to groin, and a bandage soaked in terebene outside the wool. The nurse is instructed to keep the outside bandage soaked in terebene, a small quantity dropped two or three times daily upon it sufficing for the purpose.

A wound thus dressed may be left for weeks without a bandage or pin being removed. Before removal of the dressing, it should be well soaked with terebene for three or four hours. This is done by slowly dropping the terebene all over the surface of the bandage. It is then removed carefully, layer after layer being divided with the scissors, and fresh terebene is poured on to moisten any parts which have become matted together, when they easily separate. If the terebene be frequently applied, there is no unpleasant odor.

MISCELLANEOUS ANTISEPTIC AGENTS.

Iodoform has been found practically to be an exceedingly valuable antiseptic agent, in spite of the fact that in many laboratory researches it has been said to possess a very low antiseptic influence. It probably depends upon some of its constituents, as iodine, for its value, and manifests its power when decomposing. In dry powder it is probably nearly inert as an antiseptic. It is also slightly anæsthetic.

Creolin, a coal-tar product, which is supposed to be a mixture of carbolate of sodium, a resin soap, a fat soap, and hydrate of sodium, has acquired a gratifying success as an antiseptic, to be safely employed in the disinfection of cavities, and indeed capable of internal use. It is obtained from English pit coals by dry distillation.

From an examination of its value as an antiseptic and germicidal value, FOOTE (*Amer. Jour. of Med. Sci.*, 1889) ranks it with carbolic acid, in solutions of equal strength. As, however, it does not possess the same toxic powers, it may be used in stronger solutions

than the carbolic acid. It does not form a real solution, but an emulsion, with water, and finds its especial value in washing the hands. Because of its opacity, it is not well to keep the instruments in it during an operation; besides, it makes them slippery, being of an oily consistency. It has been strongly commended as an antiseptic in gynæcological and obstetrical operations, being a relatively safe substance for use in douches, in solution of 3 per cent. strength.

Creolin has been extravagantly extolled by many, although its use has never yet become very popular. It may be employed in solution of the strength or 1 to 5 parts in 1000 parts of water. JAKSCH recommends a dusting powder of one to two parts of creolin to 98 parts of iodoform, the odor of the latter being well disguised in the mixture.

Subiodide of bismuth is said to be of decided value as an antiseptic, besides possessing the advantage over iodoform of not having any odor and being without danger of being absorbed.

Salol and *Salicylic acid* are both known to possess very decided powers as antiseptics, although inferior to the mineral salts. Being less toxic in effect, however, they may be used in many cases with greater confidence (1:100) (p. 93).

Boracic acid (p. 95) is widely used as a mild antiseptic agent, although it probably possesses little real germicidal powers. It should be employed in relatively strong solutions. A mixture of boracic acid and oil of cassia has been recommended as a dressing.

The various balsams, particularly the *balsam of Peru*, because of the benzoic acid contained, are exceedingly valuable from an antiseptic point of view. Ill conditioned wounds are cleansed and stimulated by dressings saturated in these balsams, which may be rendered more pliable by mixing with castor oil.

Hydronaphthol is claimed by WOLFF (*Internat. Jour. of Surgery*, 1888), as a powerful antiseptic agent.

GASTON (*Southern Med. Record*, 1888,) suggests the following as an antiseptic dressing:

76. R.	Camphoræ, Spiritus terebinthinæ, Olei olivæ,	3j f. ʒj. M. et adde q. s.
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The olive oil is here added in any desired proportion to form a mixture for continuous use in dressing.

Chloride of zinc is used not infrequently, and possesses powerful

antiseptic properties. It was used by many of the older surgeons before the days of antiseptic and aseptic surgery in sloughing wounds and sores, particularly about cancers. A very excellent antiseptic paste for small wounds is made by SOGIN, consisting of equal parts of oxide of zinc and water with the addition of 5 per cent. of the chloride (*Weekly Medical Review*, 1889).

Chloroform, as a solution, or by its vapors, is of considerable value as an antiseptic agent, ranking with *chloral*, *formaldehyde*, and *creolin*.

The various *essences*, as those of canella or of mint, all possess a certain amount of antiseptic influence, and a few, as the first mentioned, are actually germicides.

Sodium silico-fluoride, known also as "salufer," may be used with confidence according to CROSKY (*Med. Times and Register*, 1889,) in solutions of one grain to the ounce of water. It may be used safely even in washing out closed cavities, and in stronger solution for impregnating dressings.

Biniiodide of mercury has been advocated by a number of writers. In order to increase its solubility, iodide of potassium is added. The solution used in La Charité Hospital in Paris, is made up of 1.5 grains of the biniiodide to a quart of water (1:15000) corresponding, it is believed, in efficacy to 1:1000 solution of the bichloride.

Permanganate of potash is widely used as a germicide, and is employed frequently in the washing of suppurating sores, a small crystal being dropped into a basin of water sufficient to give a bright color to the solution.

Annidaline has been proposed as a substitute for iodoform. It is formed by the action of iodine upon phenol in the presence of iodide of potassium and caustic potash. It is a dark brown powder, insoluble in water but soluble in alcohol, benzol and chloroform. It has been used as a dusting powder.

Aristol is a somewhat similar compound, formed by the same method, but substituting thymol and soda for the phenol and potash. It is a reddish-brown powder, soluble in alcohol and ether, insoluble in water, inodorous and non-irritating. It is used in place of iodoform.

Pyoctanin. This substance (*Therap. Gaz.*, 1890,) was first introduced by STILLING, of Strasburg. It is free from odor and poisonous properties, and, according to this authority, is even more of a germicide than corrosive sublimate. It appears as a yellow and as

a blue powder, both soluble in water, and is used in a 0.05 per cent. to a 2 per cent. strength. It is particularly adapted to superficial wounds, applied upon absorbent gauze. It is also adapted for venereal sores, appearing to exert a special effect on these specific processes. The substance is an aniline compound of the nature of methyl violet.

Antiseptin. This is also an aniline derivative, and has been urged upon the profession as possessing marked analgesic and antiseptic properties.

Hydrogen Peroxide. This compound, perhaps, approaches more nearly the ideal in its antiseptic and germicidal action than any other substance. It is, however, applicable only when used in the cleansing of the wound, not being easily applied in dressing. It acts immediately upon pus and its producers, and quickly clears a wound of all suppuration. In superficial sores, in abscesses, in tubercular abscesses, it acts admirably. MORTON (*Medical News*, 1890,) employs it to keep drainage tubes and deep cavities sweet and clean. Diphtheritic membranes are easily removed by it. It is used with the best results in the treatment of soft chancres and gonorrhœa. Wherever pus exists it is probably the most effective cleansing agent known. The substance is of unequal value from different manufacturers, and is unstable if kept in the light, or longer than a few months. It is a colorless liquid, which should always be kept well stoppered and away from the light in a cool place. The preparation made by CHAS. MARCHAND, of New York, has thus far been well known as of an excellent grade. It should be applied undiluted or diluted with glycerine, and may be used upon a bit of cloth, by spray or a syringe. The substance should not, however, come in contact with metals, as it oxidizes them, or with the hair, which it bleaches.

Lysol is a recently obtained antiseptic agent derived from tar-oils by boiling with alkalis and fats. It is said to possess the properties of soap, and is especially recommended as a disinfectant for the hands. It has a rapid action upon bacterial organisms, is said to be innocuous to the human tissues, and may be employed in 0.3 per cent. solution.

Trichlorphenol and *aseptol* are both derivatives of carbolic acid, and have achieved some reputation.

No special reference is necessary to the *mercurial salts* or to *carbolic acid* because of their well-known prominence.

M. MAGNIS-LAHENS, OF TOULOUSE,

adds *charcoal* to *coal-tar*, (33 per cent. of the latter,) and thus obtains a light and porous powder, which does not irritate wounds, and which is easily washed off with cold water. This combination is a very useful mixture of two antiseptic substances. The charcoal absorbs the gases formed by fermentation, coagulates the albumen, and prevents its decomposition, thus effectually assisting the carbolic acid contained in the coal-tar.

Of the numerous other dressings which depend for their virtues on the antiseptic principle, the following formulæ give abundant room for selection :

DR. EMIL ROTTER.

(*Centralbl. f. Chirurgie*, 1888.) This physician recommends the following as an antiseptic mixture, which may be kept as powders and dissolved in water as required :

77. R.	Hydrargyri bichloridi,	gr. $\frac{5}{8}$	
	Sodii chloridi,	gr. iv	
	Acidi carbolic,	gr. xxx	
	Zinci chloridi,		
	Zinci sulpho-carbolatis,	āā	gr. lxxv
	Acidi borici,		gr. xlv
	Acidi salicylici,		gr. ix
	Thymol,		
	Acidi citrici,	āā	gr. iss. M.

These are to be dissolved in a quart of pure water.

DR. MINNICH, OF VENICE.

78. R.	Sodii sulphitis,	℥ i	
	Glycerini,	f. ℥ j	
	Aquæ destillatæ,	f. ℥ ix.	M.

As a lotion for dressing wounds and in erysipelas.

DR. ROCCO GRITTI, OF MILAN.

79. R.	Sodii sulphitis,	℥ ijss	
	Amyli pulveris,	℥ ij	
	Glycerini,	f. ℥ ijss.	

Mix and warm in a water-bath until the preparation shall have acquired the consistence of a soft cake. Used to disinfect wounds, diminish the secretion of pus, and stimulate cicatrization.

MR. THOMAS KIRKLAND, LONDON.

80. R.	Tincturæ myrrhæ,		
	Liquor calcis,	āā	f. ℥ ij. M.

As a lotion in unhealthy wounds.

81. R. Extracti cinchonæ, ℞iv
 Adipis, ℥x. M.

To be applied by means of charpie to gangrenous wounds. Internally, preparations of cinchona and a tonic regimen.

PROF. DEMARQUAY, PARIS.

82. R. Potassii permanganatis,
 Calcii carbonatis pulveris,
 Amyli pulveris, āā ℥j. M.

A painless dressing for fetid wounds.

83. R. Potassii permanganatis, gr. xv
 Aquæ destillatæ, ℥ij. M.

A wash for infected wounds.

DR. ADOLPH ADRIAN, OF GIESEN.

84. R. Picis liquidæ, ℥ iss
 Ovi vitelli, ℥ ijss
 Aquæ, f. ℥ xij. M.

This mixture may be diluted with water, and serve to inject and wash the surface of wounds.

85. R. Picis liquidæ,
 Ovi vitelli, āā ℥ ijss
 Glycerini, f. ℥ v. M.

This preparation, which has the consistence of an ointment, does not adhere to the skin like the ordinary tar ointment. It may be diluted with water, and employed for the dressing of gangrenous wounds and rebellious ulcers.

DR. LEMAIRE, PARIS.

86. R. Alcoholis,
 Acidi carbolici crystalisati, āā q. s. M.

Apply locally in poisoned wounds, small-pox pustules, etc.

87. R. Olei olivæ, f. ℥ vij
 Acidi carbolici crystalisati, ℥j. M.

Use as an antiseptic liniment.

DR. LEONARD CANE, LONDON.

88. R. Acidi boracici,
 Aquæ bullientis, q. s. ad saturandum.

This may be used as a lotion, with lint, cotton-wool, etc.

METHODS OF TREATMENT OTHER THAN THE ANTISEPTIC
AND ASEPTIC MODE.

TREATMENT BY OCCLUSION.

This method, known as the *smothering system*, was formerly a popular mode of procedure. It is based upon the healing of a wound naturally under a scab, and it was the purpose of the surgeon to simulate this scab in his application of dressings, closing the wound entirely and without reference to its internal condition. In former days the wound was sealed with lint or some other material saturated with blood. In more recent times the fresh wound is closed with *collodion* or some such material.

The substance known as "*photoxylon*" has been used in this connection as a substitute for collodion. It is made by treating wood pulp with a mixture of nitrous and sulphuric acids with nitrate of potassium, forming a nitro-cellulose. Three parts of this (a form of gun cotton) are dissolved in 50 parts each of alcohol and sulphuric ether, making a thick syrupy liquid. This on drying forms a tough adherent film. It is recommended to add to each ounce of this preparation five drops of castor oil, in order to render it flexible. It is said by a number of surgeons to be superior to ordinary collodion in dressing cuts and other small wounds (*Therap. Gaz.*, 1888).

Belonging to this classification of the treatment of wounds are the treatments by *dry, clean earth*, by *tannin* or *tannic acid*, or *some other styptic in powder*, etc. Here, too, belongs the "*raw cotton dressing*" of

DR. ALPHONSE GUÉRIN, OF PARIS.

The adoption by this surgeon of raw cotton as a dressing for wounds was a result of the demonstrations of PASTEUR, that putrefactive fermentation is due to the presence and growth of vegetable organisms, which float in the air and thus gain admittance to fresh wounds; and as the experiments of Professor TYNDALL show that these minute bodies become entangled in the meshes of cotton wool, it occurred to M. GUÉRIN, who was at that time attached to the Hôpital St. Louis, as a possible source of advantage. It was during the siege of Paris, when nearly every amputation was followed by fatal pyemia. He forthwith tried the cotton as a dressing on several patients, binding it upon their wounds in liberal quantity, and keeping it accurately applied by firm compression with bandages. To

his surprise and delight, he found that the chill, by which the advent of the fatal complication is always heralded, did not occur, and his patients went on to get well. Encouraged by this experiment, he repeated it with equal success; those dressed with raw cotton were found to do well, while others in the same ward died of the prevailing endemic. The result was so remarkable that surgeons from other hospitals came to St. Louis to witness the rare sight of patients recovering after amputation, and themselves adopted this mode of dressing wounds. Shortly, the use of raw cotton was systematized as a surgical dressing, and it has since been very generally employed.

The details of the dressing are as follows: After the operation has been completed, bleeding arrested, and the surface of the wound washed with water, or some weak disinfecting solution, a large bunch of cotton-wool is placed between the lips of the wound, and the whole limb is then enveloped in a layer of cotton eight or ten inches thick, which is then bound down very firmly with roller-bandages, which are tightened on the following day, and then the dressing remains untouched for about three weeks. If the pus makes its way between the limb and the dressing, and appears after a few days at its free margin, additional bunches of cotton are placed over the edge and bound down. Clinical experience shows that patients whose wounds are dressed in this way generally remain free from fever and pain, eat and sleep well, and make good recoveries.

After a circular amputation of the thigh, an assistant steadies the stump, while another pulls apart the edges of the divided integument, and the surgeon proceeds to fill the cavity thus presented to him with small masses of cotton torn from the sheet of wadding, small at first, and applied accurately to every part of the cut surface, then larger masses as it becomes filled, and then layers of the wadding are applied over and around the stump and upon the hip and pelvis, and over all a spica-bandage put on, with great care, and as much compressing force as possible. No air must come in contact with the wound that has not filtered through the thick mass of cotton. Moreover, this cotton must be of good quality, fresh from the manufactory, and it must not have been exposed to the air of the hospital. Under favorable circumstances, he has found it the best plan to leave this dressing in place about two weeks, when the granulating surfaces are usually found ready for approximation for final union; but he never renews a dressing in the foul air of a ward. Tarlatan and

collodion straps are preferred to strips of plaster, as more transparent. M. GUÉRIN claims that this method differs from that of "occlusion," because air can pass freely through the cotton, which acts only as a filter, freeing it from all spores and ferments. PASTEUR says that ferments are undoubtedly present in the cotton and in the wound, but that the physical condition of the pus is rendered unfavorable for their multiplication by the absorption of its liquid portions, and he advises exposure of the cotton to a temperature of about 400° Fahr., before application, as an additional precaution. Besides this prevention of sepsis, the method has two evident advantages—equable temperature, and complete immobility of the limb.

M. GUÉRIN rarely or never employs his dressing except where the limb can be covered for a considerable distance above the wound or operation. He covers to the middle of the thigh, for example, after CHOPART'S operation. The compression by the bandage, as above described, he lays much stress upon as an essential point in the treatment. Secondary hemorrhage can hardly occur when the bandage is properly applied. In the rare cases of pyemia occurring under this dressing, the rigors take place at longer intervals and are less severe than in other cases.

Note.—As clearly expressed by Prof. BRYANT in his article upon the treatment of wounds in the *International Encyclopædia of Surgery*, this method of treatment admirably fills three of the five indications he names (quoted above), but fails utterly in the last. It provides for the careful adaptation of the cut surfaces, insures rest and immobility for a time, protects the wound from external influences, but makes absolutely no provision for internal deleterious agencies. It fails to afford exit to any noxious products of the wound, so that, as Prof. BRYANT aptly quotes from Mr. SYME, "there can be little difficulty in perceiving why the sealing up of wounds should be the most certain means of keeping them open."

THE OPEN TREATMENT OF WOUNDS.

PROF. JAMES R. WOOD, NEW YORK.

No one in this country has given closer attention to the treatment of amputations by the open method, nor with better result, than this surgeon to Bellevue Hospital. The details of his plan are as follows:

After a limb has been amputated, the flaps are not even approximated, but left entirely open. A pillow of oakum is placed under the stump, which is allowed to rest upon this support until the wound is nearly healed. A small piece of gauze is placed over the contour of the stump, and a cradle is placed over the limb, so that the clothes may not come in contact with the painful extremity. This is all the dressing that is employed; no sutures are used except in the lateral skin-flap method, as will be described. No adhesive plaster is employed, no oil-silk is placed over the stump, no bandage is applied, no dry charpie is stuffed into the wound, no fenestrated compresses are placed between the flaps; in other words, the stump is left entirely alone, just as the surgeon made it in his amputation. The wound is thus allowed to drain freely, and the stump is gently washed at frequent intervals by means of an Es-march's wound-douche. The water in this irrigator is impregnated with crystals of carbolic acid, and, after this ablution, balsam of Peru (which makes a fine stimulating application) is poured over the granulating surface. The discharge which falls from the wound is removed every few hours in order to secure perfect cleanliness; and it is a fact worthy of observation that this discharge will not decompose when exposed to the open air, but that it requires a warm temperature, such as exists in the stump itself, in order to develop putrefaction. The pus, thus coming away from a nidus of putrefaction which would otherwise be formed, falls upon a piece of sheet-lint where the temperature is cooler, and thus does no harm. The stump is then washed at frequent intervals until suppuration has nearly subsided in the wound, and then the flaps are gradually approximated by means of strips of adhesive plaster. Too much importance cannot be attached to this method of operating by the lateral skin-flaps. It affords the best facility for free drainage, and makes the most serviceable stump. It is important to dissect the flaps very long, when they are subjected to open treatment, as shrinking often follows exposure to atmospheric influences. During the entire healing of the wound the greatest possible care is exercised in reference to the use of the instruments necessary to perform the dressing of the stump. No sponges are ever used in the wards. Each patient has his own bottle of balsam of Peru, and every instrument used in the dressing of one stump is thoroughly washed in carbolic acid water before it is employed in the dressing of another. So far as has been practicable, a different set of scissors, dressing-

forceps, and other instruments employed in the manipulation of a dressing, are used, so that each patient has his own instruments, and in this way absolute cleanliness is secured. Each dresser invariably washes his hands in carbolic acid water after dressing one case before undertaking another, and any one who is dressing unhealthy wounds in the pavilion, or making autopsies, is not allowed even to assist in the daily dressing of healthy wounds. To some this red tape may seem absurd; and it is possibly true that one must be thoroughly convinced of the necessity of these measures before he can be induced conscientiously to observe them. The undoubted advantages, however, are:

1. That suppurative fever is very much diminished, and in some cases almost entirely obviated, by this method of dressing.
2. That the tendency to the formation of abscesses is very much lessened.
3. That the predisposition to erysipelatous inflammation is diminished.

Wounds thus freely exposed to the air, when kept for some time in one position, and so placed that the discharges easily escape, are said to succeed as well as wounds treated by the other methods; and this opinion is supported by statistics advanced by surgeons who have given the plan an extensive trial. The explanation offered for its success is that part of the secretions form a crust upon the surface of the wound, the rest flows away, and the wound remains odorless. The crust is dry, and consequently unfavorable for the development of spores that may fall upon it; and when it comes off, it discloses a healthy, granulating, perhaps partly cicatrized surface, which cannot be easily injured by contact with ferments. This is the "healing under a scab" of the English authors. BILLROTH says the method was first introduced in 1856, by VEZIN, and that he himself adopted it in 1860, and has since employed it, with the best results, in amputations, resections, and after the removal of many tumors. Its chief advantage is that it protects against the dangerous primary phlegmonous inflammations, by allowing free escape of all the secretions; but it does not protect against erysipelas and hospital gangrene, and is useless when inflammation has once set in. If the wound is irregular, and permits the accumulation of pus and secretions, there is danger of inoculation by micro-organisms.

Note.—As a means of treatment this method is probably superior to all others in which the principles of strict antiseptic or aseptic

dressing are not followed, in that it provides for free drainage and escape of all noxious substances. It fails particularly in not providing for proper immobilization and protection from external influences. In its underlying principle, cleanliness, it approaches most nearly to the surgery of to-day.

WATER DRESSINGS.

The employment of simple water, without medication, as a means of cleansing and dressing wounds, may well have been of the earliest date. Some years since it was brought into popular favor again by a systematic treatment of Dr. ADOLPHE AMUSSAT, of Paris, who fully described its various uses and methods of application. The *temperature* of the fluid was the principal point about which surgeons disagreed. That recommended by AMUSSAT as preferable was about 60° Fahr., and the method of irrigation was the method which surgeons found most available.

ESMARCH and others speak well of irrigation in military surgery. It is practised as follows: A can of water or medicated solution is suspended at convenient height over the part to be irrigated, and a tube or a number of threads conduct the fluid drop by drop or in a gentle stream to the surface of the wound. After passing over, cleansing this, the fluid is caught in a vessel placed beneath the part for that purpose. In sloughing amputation wounds, in gunshot wounds of the limbs, this method has proved of considerable value.

Experience has led several eminent observers to reject cold water in favor of warm, and the method of irrigation in favor of immersion. Others have been guided by the general rule, which is that now laid down in the various standard works of surgery, that the sensations of the patient are to be consulted, and that temperature chosen which feels most agreeable to him. (GROSS, ERICHSEN.)

PROF. N. B. CROSBY,

Of the Bellevue Hospital, New York, says (*New York Medical Journal*, February, 1877), that the undoubted success of warm water immersion is due, first, to the exclusion of air; second, to the

soothing effect of warmth and moisture; third, to the fact that heat favors cell-infiltration; and finally, and perhaps most important of all, the changing of the water from time to time removes all septic matter, and thus prevents absorption of purulent and putrid elements.

An elevated temperature in the water proves a marked advantage when the vitality is low. The rule for lacerated and contused wounds is to slough to a greater or less extent. The separation of the slough is dependent on cell-infiltration or the formation of granulations, and this is retarded by cold and aided by heat, and the more rapidly this is brought about the more rapidly will adhesive inflammation be set up, and insure the immediate safety of the patient by plugging the capillary vessels and closing the lymphatics.

When it is desired to add some antiseptic to the solution, the surgeon may choose between the great number of these agents, taking care only lest the solution be so strong that by absorption it produce undue consequences, or by its irritating properties cause local disturbances.

THE DRY DRESSING OF WOUNDS.

MR. SAMPSON GAMGEE, SURGEON TO THE QUEEN'S HOSPITAL,
BIRMINGHAM.

This surgeon (*The Lancet*, December 23, 1876,) advocates *dry* and *rare* dressings in the treatment of all wounds, whether the injured parts be soft or hard, skin, bones or muscles, or all combined. Drenching wounds with water during an operation, and washing them with it afterwards, are mistakes. Water favors decomposition, which is the enemy of healing action. After an operation wound, the cut surface is first thoroughly dried with a soft sponge; the edges are then accurately approximated, and kept so with a few strips of lint soaked in Richardson's styptic colloid (see Index), or else with numerous points of silver suture; if the surface is large, it is dressed with a layer of fine cotton wool, such as is used by jewelers, and over this, fine picked oakum; a well-adapted bandage exerts gentle and firm compression on the parts. This dressing should not be touched for several days—four to six—and then the use of water should be scrupulously avoided. To remove the styptic

colloid, a mixture of alcohol and ether may be employed, or equal parts of absolute alcohol and distilled water, warmed to a little above the heat of the body. CHASSAIGNAC'S drainage tubes are invaluable to convey the products of suppuration from the wound.

PROF. BRYANT, LONDON.

A dry dressing is to be preferred to one in which simple water forms a part, inasmuch as it absorbs the exudations and renders them more or less inert, keeps the surface of the wound quiet, and protects it from external influences. It should be composed of some absorbent material, preferably impregnated with some antiseptic substance, as boracic acid, salicylic acid, iodoform, or mercuric chloride. Where the wound is small and clean, this form of dressing is undoubtedly of great value, healing by rapid union usually following. When the wound is large and deep the same recommendation cannot be made, and in lacerated or contused wounds it is improper, since in these last rapid union is impossible, and considerable tissue destruction and discharge are almost sure to take place.

EARTH DRESSINGS.

The introduction of earth dressings in modern surgery is due to Dr. ADDINELL HEWSON, of Philadelphia. He takes clean, dry, well-sifted subsoil earth, and applies it liberally to the wounded part. The earth should be thoroughly dried in the sun, and all lumps and gravel sifted out of it. It is dusted over the wound in a layer varying from one-fourth of an inch to one and one-half inches, as occasion may require. It should be changed once, twice, or three times in the twenty-four hours, according to the discharges, as it should not be allowed to remain after these have moistened it.

Since the death of Dr. HEWSON, the method has fallen into disuse, and is now to be regarded but as one of the curiosities of surgery.

ALCOHOLIC DRESSINGS.

The employment of vinous or alcoholic liquids as surgical dressings dates back to remotest antiquity. One of the warmest living advocates of it is

DR. BORLÉE, PROFESSOR OF CLINICAL SURGERY, UNIVERSITY OF
LIEGE.

This surgeon prefers alcohol, simple or camphorated, to carbolic or salicylic acid, or any other of the vaunted antiseptics. (*Journal des Sciences Médicales de Louvain*, 1876.) The following is his customary method of applying it:

The liquid preferred is simple or camphorated alcohol of the temperature of 68° Fah. Having washed the wound carefully with this, he applies on the edges of the solution of continuity, if they are approximated, or between them, if they are not, tufts of charpie wet with the alcohol. Above these he places a compress and bandage, and then a piece of oiled silk, so as to prevent the evaporation of the alcohol and the desiccation of the dressing. If the wound is large, the dressing should be renewed several times a day, the alcohol being somewhat diluted.

He considers that the alcohol favors immediate union, prevents excessive inflammatory action, aids in sustaining the vital powers, promotes healthy granulations, and moderates the suppuration.

PROFESSOR H. F. DOLBEAU, OF L'HÔPITAL BEAUJON, PARIS.

The bleeding having been staunched, the raw surface is washed with the strongest commercial alcohol, and then dried with some fine soft linen. The cavity caused by the loss of substance is filled up, and in the case of an amputation, the flaps are covered with feathery tufts of fine charpie saturated with alcohol. The entire dressings are then enclosed in an envelope of impermeable gutta-percha tissue, and retained in position by a few rounds of a bandage. During the day the gutta-percha is temporarily removed, and the underneath dressing moistened with alcohol. Next day, and on each following five or ten days, the entire dressings are renewed. The charpie adherent to the raw surface is carefully moistened with alcohol before removal, to prevent any oozing of blood. At the end of eight or ten days, raw surfaces treated in this way are quite dry, and present a slate-gray color. This dried-up state may be indefinitely prolonged. To accomplish permanent healing it is necessary to induce suppuration in the wound. The idea of DOLBEAU is to maintain the alcoholic dryness (*secheresse alcoolique*) till all risk of traumatic fever is past, and till the patient sleeps and eats naturally, and has so gained strength. He then considers that the time has arrived for promoting suppuration with a view to cicatrization. Glycerine dressings

are forthwith used. If the formation of pus is excessive, occasional alcoholic dressings are employed to moderate it. DOLBEAU maintains that by following the method now briefly described, traumatic fever is prevented, and the surgeon is enabled to arrest or diminish the suppuration of wounds at his pleasure. The views as to the necessity or desirability of suppuration, as here expressed, are no longer acceptable, the other portions of the instruction being, however, justifiable.

DR. DAVID BLAIR, OF SCOTLAND.

In the *Glasgow Medical Journal*, February, 1870, this writer recommends the use of *whisky* as a surgical application. He washes the wound with the whisky, and then wraps it in rags saturated with the fluid, covering the whole with gutta-percha tissue or oiled silk. As a rule, the first dressing is not disturbed for three or four days, and afterwards every day or every second day. The principal thing to be attended to is to have the bandage kept wet with the whisky, but not *too* wet. He has never seen erysipelas follow in a wound thus treated, and suppuration has always been moderate. In treating *bed-sores*, he finds poultices mixed with whisky and whisky lotions of superior efficacy. In cases of chronic and scrofulous *abscess* he has used it as an injection, and found that it checked the discharge and hastened the cure.

Dr. HORVARTH has had an opportunity of testing the value of alcoholic application to burns on his own person, as well as upon others, and not only was all pain instantly allayed directly the part was immersed in cold alcohol, but it was found that the wound very speedily began to assume a more healthy appearance, the surrounding redness rapidly fading.

NOTES ON REMEDIES.

Alcohol, as an efficient antizymotic and stimulant, has been largely used as a dressing. (See above.) Most of the tinctures used as vulneraries owe their value to the alcohol they contain.

A formula much used by Prof. JOSEPH PANCOAST, of Philadelphia, is :

89. R.	Castile soap,	℥i	
	Bicarb. potass.,	℥ij	
	Alcohol,	f. ℥iv.	M.

Apply with pledgets of lint.

Aloes, in powder, dusted on smaller lacerated wounds, forms a stimulant dressing, by occlusion, highly praised by some French surgeons.

Alumen, in the following formula, has been used by Prof. LISTER as an application to ill-smelling and suppurating wounds :

90. R. Aluminis, Plumbi acetatis, Aquæ,	ss i ij Oj.	M.
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For a lotion.

Aluminii Chloridum, is a powerful antiseptic deodorizer ; not poisonous, and particularly serviceable in wounds with foul discharges.

Annidalin has been proposed as a substitute for iodoform, on account of the disagreeable odor of the latter.

Aqua. The oldest, simplest, and, in some cases, the best of dressings is pure water, of proper temperature.

Aqua Chlorinii in its concentrated form (one part to ten). It is rather painful, and when diluted its application must be frequently renewed.

Aristol is somewhat similar to annidalin, and has achieved some reputation as a substitute for iodoform.

Aseptol is a recent derivative from carbolic acid, and possesses antiseptic properties.

Antiseptin is an aniline derivative used as an antiseptic. It also possesses analgesic properties.

Balsamum Peruvianum is a most excellent application to wounds. Dr. MARTIN BURKE, of New York, finds the following combination unsurpassed for foul sinuses, old ulcers, badly lacerated tissues, etc. :

91. R. Acidi carbolici, Aquæ, Balsami Peruviani,	3j f. 3j f. 3iv.
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To be well beaten up. Apply on picked oakum after carefully cleaning the wound. (*Medical and Surgical Reporter*, Feb., 1877.)

Balsamum Tolutanum. A German surgeon, Dr. E. WISS, of Berlin, has recently expressed himself in almost unbounded praise of balsam of tolu as an application to wounds of all kinds. When the balsam was put upon wounds, it produced an immediate sensation of burning, which, however, very soon ceased, as did all pain, even in most severe wounds. Fresh wounds under this treatment showed no inflammation, and in those already inflamed it soon ceased. No suppuration took place, and where it was already present it soon disappeared. No wound treated by him by this method took on a septic character, even under the most unfavorable local and climacteric surroundings. In all cases, even in lacerated wounds, there was union by first intention, a thing which had not been his experience in any other method of treatment. (*Berliner Klin. Wochenschrift*, 1876 and 1879.)

Benzoin. Recent observation has shown that benzoic acid has decidedly an-

tiseptic properties. The compound tincture of benzoin has been employed very successfully as a dressing to recent wounds. It is similar to the once celebrated "Friar's Balsam." Pure tincture of benzoin, applied on lint, is an admirable primary dressing. All the balsams owe whatever of antiseptic properties they possess to the benzoic acid present in their composition.

Boracicum Acidum has been recently introduced and very favorably reported upon. (See pages 95, 101.)

Bryonia. Tincture of bryony is a favorite application among pugilists for the bruises, cuts and contusions they receive in their encounters. It seems little known as a local application to the profession, while its acknowledged powerfully stimulating properties, both to the skin and mucous membrane, recommend it as probably very efficacious in such wounds.

Calcii Iodas. The iodate of calcium has been employed with very excellent results as an antiseptic by Mr. S. W. MOORE, of London. (*St. George's Hospital Reports*, 1875.) He applies it in the following proportion to foul ulcers, cancers, purulent abscesses, etc. :

92. R.	Calcii iodatis,	3 ^{ss}	
	Farinæ pulveris,	3j.	M.
For external use.			

He also derived much benefit from its internal administration, grs. j-ij, thrice daily.

Calendula Officinalis. A tincture of this indigenous plant, diluted two parts with water, has been recently extolled by Dr. G. H. CHAPMAN, of Illinois (*Michigan Medical News*, November, 1878), as possessing antiseptic and curative properties of a remarkable kind.

Camphora has been employed, both powdered over the wound and mixed with carbolic acid, etc. (F. 71.) It is only slightly soluble in water, and is not a deodorizer. Camphor in combination with carbolic acid is the basis of the preparation known as *campho-phenique*, an antiseptic and germicidal agent of value.

Carbo Vegetalis. Wood charcoal is a convenient and powerful antiseptic application. It may be used as a poultice (p. 71), or mixed with other substances, or applied as powder.

Cartolicum Acidum at one time was the leading antiseptic with surgeons. (See above.) Its odor is offensive to most patients, and when dissolved in oil it ruins the dressing and bedding. It is also poisonous, and in operations under chloroform is said to increase the dangers of the latter by rendering the air less respirable. Much of the success which followed its use in the hands of LISTER and his disciples was said by others to be attributable to the unusual cleanliness and care he

enjoined. It is to be added that in recent years LISTER no longer adheres to carbolic acid, being satisfied of its disadvantages and inferiority to the mercuric salts.

Chloral has been used extensively as an outward application for the relief of pain, and as an antiseptic for the dressing of wounds. (See page 97.)

Chlor-Alcohol. Under this name Dr. E. HERMANT, of Brussels, has introduced a mixture of equal parts of chloride of lime and tincture of camphor, which he recommends as an antiseptic, detersive and cicatrizing.

Chlorininum. As a powerful oxydizing disinfectant and local stimulant, the use of dilute aqua chlorinii has some advantages.

93. R. Aquæ chlorinii,
Aquæ,

f. $\frac{3}{4}$ ss-j
Oj.

M.

Use as a lotion.

It must be remembered that chlorine water is a powerful irritant, capable of producing severe inflammation of the skin. The *liquor sodæ chlorinatæ* is a more appropriate preparation for dressings, and has been employed with great satisfaction in unhealthy wounds.

Chloreform in vapor or solution is of considerable value as an antiseptic.

Collodion is used to bind together the edges of clean-cut wounds, to exclude the air. It is unfortunately liable to crack. (For RICHARDSON'S styptic collodion, see the Index.)

Creolin, a coal-tar product, has been extravagantly praised by some as an antiseptic agent, but has not come into general use as yet. It may be employed in solutions of the strength of 1 to 5 parts in 1000 parts of water.

Creosote in solution is a powerful antiseptic stimulant. Dr. SQUIBB believes that both for disinfection and local application, no preparation is better than the ordinary creosote of the shops (a mixture of phenol, cresol, xylo, and perhaps one or two others of the series, the cresol predominating), which has also the advantage of being much cheaper. For burns, both to allay the pain and to promote healing, nothing compares with such a solution, containing about one-half of one per cent. of creosote. If much stronger it not only fails to relieve, but intensifies the pain.

Ferri Salicylas. This preparation is made by adding salicylate of soda to a saturated solution of sulphate of iron. It is of a bright claret color, with no smell, not irritant, and strongly antiseptic. It has been recommended by Dr. ROBERT KIRK, of Edinburgh, as an application to foul ulcers, etc. He applies lint soaked in the solution, and covers with gutta-percha tissue. (*Edinburgh Medical Journal*, February, 1877).

Ferri Sulphas. For dressing wounds, when there is much discharge and

fetor, a solution of this salt, ʒj to aquæ Oj-ij., will be found very effective. It is a very good disinfectant, and in these cases diminishes the odor better than carbolic acid, for it has no disagreeable smell of its own; it also dries up the excessive discharge in a prompt manner; it hastens the granulating and cicatrizing processes, which are apt to be retarded by the profuse discharge. The lotion gives rise to some smarting when first applied, but this soon passes away, and so much is the general comfort of the patient promoted, that this soon comes to be disregarded even by children; it should be applied on cloths well wetted, and renewed every two or three hours; it is well to protect the bed-clothes, for the stain is well-nigh indelible.

Glycerinum is a useful and cleanly dressing. It should be diluted by one-half of oil, alcohol or water, as if applied pure it causes painful smarting.

Gutta-percha dissolved in oil of turpentine or chloroform is an excellent application for keeping the edges of wounds together.

Hæmatoxylin. Logwood is an excellent disinfectant and antiseptic when applied to suppurating and offensive wounds. The powdered extract may be used, or it may be dissolved in a lotion. The following is recommended by Dr. TANNER:

94. R.	Extracti hæmatoxyli,	ʒj		
	Olei theobromæ,			
	Adipis benzoati,	āā	ʒ ss.	M.

To be spread on old linen for a dressing.

Hamamelis. The tincture of witch-hazel has much reputation as an application to wounds. Its virtues are owing to the alcohol and the tannin of the plant.

Hydrargyri Chloridum Corrosivum. Corrosive sublimate is a powerful antizymotic, ranking first in efficiency. In very dilute solution, it is an excellent stimulating and antiseptic application to wounds:

95. R.	Hydrargyri chloridi corrosivi,	gr. ss-j	
	Aquæ,	Oj.	M.

For a lotion.

Hydrargyri Biniiodidum, dissolved by the aid of iodide of potash, is said to have even a more powerful antiseptic and germicidal action than the bichloride by certain observers. BERNARDY, of Philadelphia, is an advocate of its use.

Hydrogen peroxide (H_2O_2) is a liquid preparation with marked oxidizing properties. It is extremely energetic in its action against all suppurations, and has acquired a notable reputation as an antiseptic wash for purulent foci. It is employed as a spray, as a wash, or by irrigation

with a syringe. It must not be brought in contact with any metal, for fear of oxidation of the latter.

Hydronaphthol is looked upon by WOLFF as a powerful antiseptic.

Iodinium. As an antiseptic and healing application to wounds, a weak solution of iodine has been used, gr. j-ij to the ounce of water : to this some tannic acid may be added, forming a weak *iodo-tannin*, which will be found very efficient. The objection to it is that the applications must be frequently renewed, and if too strong, are likely to cause acute inflammation.

Iodoform, one of the most valuable antiseptic agents thus far discovered, is a product of substitution of iodine in the methane radical. It is analogous in its formation to chloroform. It is a yellow powder insoluble in water, but soluble in ether. It is used as an antiseptic dusting powder, and while possessing little germicidal value when dry, when broken up in contact with the discharges of the wound exerts marked anti-bacterial power.

Lysol is a recently obtained antiseptic, derived from the tar oils. It is used especially as a soap.

Oleum Olivæ. Some surgeons use the best olive oil as an application to wounds in preference to water, as being more soothing, less heating, and less prone to promote decomposition. (ERICHSEN).

Petroleum, both crude and refined, has been used as a dressing. It is not irritating, or very slightly so, to cut surfaces, and is antiseptic and stimulating. It may be used pure, or diluted with equal parts of olive oil or glycerine. *Unguentum petrolei* is highly esteemed.

Photoxylon is a substitute for collodion in dressing wounds (p. 106), and possesses the great advantage over the latter that it is more adherent and can be rendered very flexible by a few drops of castor oil.

Picricum Acidum. M. EUGENE CURIE recommended picric acid in a watery solution, with which the dressings are saturated, or, better still, picrated wadding, that is to say, pieces of dry wadding in which picric acid has been incorporated ; the last method is generally the most convenient in application. This method, according to the author, affords the advantage of completely suppressing suppuration.

Pix Liquida. Tar is an extremely useful and cheap dressing for wounds. Dr. C. B. LEITNER, of Georgia, has praised the use of *tar bandages*. (*Trans. State Soc., Georgia*, 1878.) He puts fresh pine tar in a glass vessel, and places the vessel in a pot containing water ; after the water has boiled for a half hour, the vessel containing the tar is set aside until all the foreign matter is precipitated ; then decant, leaving the foreign matter at the bottom ; finally, add one part of sweet oil to twenty parts of the tar. After the roller bandage is adjusted, in

amputations, this ointment should be thoroughly applied, once in four or five days being sufficient. In wounds, cloth strips can be used as one would use adhesive strips. Change of dressing is not necessary, and flies will not approach the wound.

Plumbi Acetas. Solutions of the acetate and subacetate of lead (Goulard's extract) are widely and justly popular as astringent and sedative dressings for wounds. (See pages 98, 99.) Although chemically incompatible, it is frequently combined advantageously with opium. For use on the skin, the strength should not be greater than gr. x. to aquæ f.ʒj. Even in weak solution the subacetate destroys bacteria, but it is not a good deodorizer.

Plumbi Nitras, as an application to foul wounds and excoriated surfaces, is highly esteemed. A solution of it, ʒj to aquæ f.ʒj, is known as *Ledyen's Disinfectant Solution*. A convenient strength is gr. x to aquæ f.ʒj; or it may be prepared extemporaneously by dissolving a scruple of carbonate of lead in sufficient diluted nitric acid for solution, and adding a pint of distilled water.

Potassii Permanganas. This salt, in solutions of gr. j-xx to the ounce, has been very highly praised as a dressing by some surgeons, but is very lightly esteemed by others. It is, at least, an effective deodorant, and, except that it stains the bedding, etc., an elegant application. The solution should be made only of such strength that it can be borne without any pain or uneasiness. The discoloration it causes may be removed by sulphate of iron.

Proctanin, a purified form of methyl violet, is regarded by some as even more of a germicide than corrosive sublimate. It occurs in two forms, the blue and yellow. It is usually employed in solutions of 0.05 to 2 per cent. strength; it leaves a stain upon whatever it comes in contact with, but this may be readily removed by soap and water.

Salicylicum Acidum has recently been prominently urged by Mr. CALLENDER. (F. 68.) It is probably less active than carbolic acid.

Salol probably ranks with salicylic acid.

Sodium Silicofluoride is claimed by some to be an exceedingly safe and satisfactory germicide; but others hold it as irritant to the wound surface and toxic.

Sterone. This antiseptic is obtained by heating styracin or cinnyl cinnamate (a compound contained in liquid storax and in balsam of Peru) with caustic alkalies. It crystallizes in soft, silky needles, having a sweet taste and an odor of hyacinths, melting at 33° Fahr., and volatilizing without decomposition at a higher temperature. It is moderately soluble in water (about 1 part to 12), freely in alcohol and ether. Dr. BEACH tested the efficiency of the antiseptic by applying it (1 part to 12 of water) to a foul, ulcerated surface, with the effect of completely

This makes a clear solution of agreeable odor. It is used the same as carbolic acid.

Tinctura Opii Camphorata, with equal parts of simple syrup, is recommended by Dr. Q. C. SMITH. (*Nashville Journal of Medicine and Surgery*, June, 1879.) Flies will not approach the wound, and it heals rapidly.

Trichlorphenol is a recent derivative from carbolic acid, possessing antiseptic properties.

Zinci Chloridum. A powerful antiseptic and stimulant. In exsection or amputation of cancerous or other ill-conditioned parts, Mr. C. DE MORGAN recommends that the wound be mopped thoroughly with a solution, ℥j-ij to aquæ f.℥j (the weaker is generally strong enough). As an antiseptic and stimulating dressing, gr. v-x to aquæ Oj is exceedingly useful. Sir W. BURNETT's disinfecting fluid consists of gr. xxv of this salt to aquæ f.℥j; for use, about one ounce of this solution is added to a quart of water.

IV. THE TREATMENT OF SPECIAL FORMS OF WOUNDS.

Incised Wounds (see last chapter)—Lacerated and Contused Wounds—Contusions—Punctured Wounds—Subcutaneous Wounds—Gun-shot Wounds—Sabre Wounds—Arroto Wounds—Bites and Stings—Poisoned Wounds.

(For wounds of special regions, see sections devoted to such regions.)

The treatment of incised wounds may well be referred to the previous chapter, inasmuch as almost without exception the instructions there laid down referred to this class. Of course with slight modifications these same principles are applicable to all classes of wounds. It has nevertheless seemed appropriate to consider more definitely each of these classes, since the most momentous mistakes of surgery are usually the little ones. Slight details overlooked make all the difference between an innocent and a dangerous wound; slight mistakes carry the surgeon's knife from the region of safety to one in which danger has been more than once beyond the limit we term imminent; slight mistakes have led the patient more than once beyond the boundary line we term life.

LACERATED AND CONTUSED WOUNDS.

PROFESSOR BRYANT, OF LONDON.

The principles which this eminent authority presents (*International Encyclopædia of Surgery*), for the treatment of lacerated and contused wounds, are in reality those previously indicated in reference to ordinary incised wounds; but he calls attention to certain modifications which are apt to be called forth in this or that case by the special nature of the wound. For example, in a lacerated wound, just as in an ordinary one, the necessity for cleansing is the first and an important indication, and the stoppage of hemorrhage here also is absolutely demanded. But the tissues in such a wound, which by the violence have been more or less devitalized, will undergo retrograde changes, will soften down and be discharged.

The possibility, then, of careful approximation and suturing disappears largely, and it becomes a matter of the greatest importance to have the wound open for the free escape of all such tissues, as well as for the fluids which must be poured out in the reparative process. Efforts at immobilization of the part, fixing it in the position most comfortable to the patient, must of course be carried out; and it is eminently clear that the most careful efforts to drain the wound, from its deepest parts, must be prosecuted. The dressing of the wound will demand great care, and septic absorption must be constantly guarded against. In *one* case it may be best to regard the wound and treat it as an open one from the first, lightly filling the cavity with the dressing, as if it were a surface wound; in a *second* case, where there is a tendency for the lips of the wound to fall together and become adherent, and where such adhesions would be harmful lest they prevent the free evacuation of the discharges, it may be necessary to keep these edges apart by the packing, as well as perhaps to pack the wound from the bottom with the dressing; in a *third* case, where the provision for drainage is very imperfect from the nature of the wound, it may be imperative to make a counter-opening into the dependent portion of the wound, or at some other point, as circumstances may suggest. At all events, none of these wounds can be expected to heal by rapid union, and it is of the utmost importance that free means of egress for all the wound secretions and altered tissue be provided, so that there need be little or no disturbance of the parts. The primary dressing used by this surgeon in such wounds has been one of absorbent cotton or lint saturated with a mixture of:

98. R. Terebene,
Olive oil,

f. ℥ j
f. ℥ iij.

M.

Over the saturated dressing there should be placed a layer of dry lint or cotton. Where it is necessary to fill out a wound cavity, strips of lint or pledgets of absorbent cotton saturated with this terebene mixture may be lightly packed into the wound, and the whole covered with a pad of absorbent cotton held in place by a bandage. Drainage tubes may be used in connection with such dressing. Where the wounds have been severe and there may be expected a large amount of discharge, the opening to the drainage tube should not be closed or in any way hampered by sutures or tight dressings. This precaution prevents the retention of any dele-

terious substance, and permits the dressings to remain on the part undisturbed for a greater length of time, a circumstance which is to be regarded very favorably.

LISTER and most other surgeons regarded any blood in a wound with the greatest disfavor, endeavoring to get rid of every possible trace, and believing it as simply so much of a nidus for the growth of micro-organisms. Recently SCHEDE has advocated the healing of wounds under a moist blood clot, and the idea has proved of some popularity. HALSTEAD (*Maryland Med. Jour.*, 1891) advocates the measure. The blood clot in lacerated and contused wounds may serve a very valuable purpose, as pointed out by this surgeon, in filling dead spaces. In these spaces it serves as a basis, a frame-work upon which the new tissue may form, thus very materially aiding in the process of regeneration. In a wound carefully dressed with covering to prevent the rapid drying of the clot, this purpose may well be carried out.

W. WATSON CHEYNE recommends (*Internat. Encyclopedia of Surgery*) that lacerated wounds be thoroughly cleansed with an antiseptic solution, using the greatest care possible to reach every part of the wound with the solution. Of course, before thus endeavoring to sterilize the wound, it should undergo a careful search for larger sources of impurity, dirt, bits of clothes, etc. These having been removed, with a syringe fitted with a small soft-rubber catheter he goes over the surface, the fine, flexible tube of the catheter enabling him to reach every recess. This having been done he applies in considerable quantity a salicylic acid cream, which he makes up by rubbing the salicylic acid into carbolated glycerine until it gets of the consistency of cold cream. After this he applies a layer of gauze, well filling up the unevenness of the wound, and places over it a superficial layer of gauze or absorbent cotton, which is fixed by a bandage. The dressing is not changed for a number of days unless there be special indication; and when it is, is reapplied in the same manner as the original.

CONTUSIONS OR BRUISES.

PROF. HUNTER MCGUIRE, OF RICHMOND, VA.

This popular Southern surgeon, in his article upon contusions in *Ashurst's International Encyclopædia of Surgery*, lays down the following plan of procedure in dealing with contusions: In case of a bad bruise the first duty of the surgeon is to prevent the further effusion of blood, if this have not ceased spontaneously before the latter has appeared. This is best accomplished by *elevation* of the part, *rest* and the application of *cold*. Cold water, or lotions containing camphor, tincture of arnica, muriate of ammonium, are valuable in this connection. The part should be kept cool by the application from time to time of several thicknesses of linen or cotton saturated in such solutions. The author especially recommends a mixture of equal parts of whisky and water for this purpose. Lotions containing acetate of lead (as F. 73), sulphate of zinc, carbolic acid, vinegar, alum, or common salt, are also used; tincture of bryony is used by pugilists for the bruises received in their encounters, and is probably of more value than is appreciated by the medical profession. Where some larger vessel has been ruptured and the subcutaneous hemorrhage threatens to be serious, ice should be kept upon the parts in a bladder or rubber-bag. Or if the contusion is accompanied by a broken bone or such other injury that severe inflammation of the part is feared as a result, a basket filled with ice should be suspended over the seat of injury, the cool air falling from the basket to the injured part, and the iced drippings dropping over the point where an inflammatory outbreak is feared. Dr. MCGUIRE suggests that the basket be hung upon a pulley, so that the degree of coolness may be somewhat regulated by the nearness of the basket to the seat of injury. Of course the part must be immobilized; if a limb, in a fracture box; if an arm, in some open splint.

Where the effusion is very great and the vitality of the part endangered, the temperature lowered, the author recommends *dry heat* instead of *cold*, applied for example by means of hot flannel or cotton, enveloped in oiled silk.

When the hemorrhage is stopped and the danger of inflammation passed by, *compression* is often useful, as by a gently applied bandage. In mild cases compression may be used from the first with

benefit, as where a mother prevents the "bump" on a child's head by the pressure on the spot of a piece of ice or a spoon handle. The pressure stops the hemorrhage and scatters the blood already effused so that it may be the more readily absorbed. Dr. McGUIRE does not agree with those surgeons who advise against the withdrawal of the effused blood. He has on a number of occasions withdrawn the blood from the recent bruise by means of a clean hypodermic syringe, and has materially diminished the time required ordinarily for the disappearance of the bruise-mark. He remarks that pugilists are in the habit of letting out the blood from their bruises and from their swollen and discolored eye-lids by means of an opening, slightly pressing the part if necessary to cause the escape of the blood. Where the blood by its pressure causes pain or injury to delicate parts, it should certainly be withdrawn. Thus if the bruise cause an effusion of blood beneath the nail, causing pain, he advises that the extremity be soaked in hot water for half an hour or longer when the nail can easily be perforated. So about the eye the blood had best be removed, its pressure possibly being injurious. Dr. McGUIRE prefers not to use leeches in the withdrawal of blood in these cases, as they do not take up much of the stagnant blood but withdraw blood that is freely circulating in the neighboring vessels, and at any rate, often cause irritation and increase the tendency to suppuration.

When the contused part becomes hot, red, painful and throbbing, and suppuration has actually taken place or is threatening, a free dependent incision should be made, thoroughly evacuating the blood and serum. The cavity should then be washed with a lotion of chloral or carbolic acid; after this a light linseed poultice may be applied. Afterwards the wound should so be dressed as to hasten union, a compress and firm bandage being usually all that is necessary.

Sometimes when the contused part is in the members, and the soft parts are mashed, the bone comminuted and large vessels and nerves destroyed, amputation may be necessary to prevent gangrene.

Low diet, free purgation and general antiphlogistic treatment are to be followed in the earlier part of the care of contusions of importance; in the later stages nutritious diet and tonics are the rule.

PROF. THEODOR BILLROTH.*

The treatment of contusions without open wounds, has for its ob-

* *Surgical Pathology and Therapeutics*, 1871.

ject the conduction of the process to the re-absorption of the extravasation.

If called to a contusion which has just occurred, the indication is to correct, at once, the subcutaneous hemorrhage. This is best done by *compression*. In North Germany, when a child falls on its head or knocks its forehead, the mother at once presses the handle of a spoon on the injured part, to prevent the formation of a blood-bruise, or blood-blister, as it is called. This is a very suitable popular remedy. By the instantaneous compression, the further escape of the blood is hindered, as also its collection at one point. The ecchymosis just forming is dispelled, and the blood dispersed into the surrounding tissue, when it can readily be absorbed. This object we can attain if the wound is seen early, by applying a compress to the part, secured by a firm bandage.

But as we rarely are called so early, we more frequently have to attack the blood extravasation after it has partly formed.

The use of *cold*, in the shape of rubber bags, or bladders filled with ice, or of cold lotions, is a frequent remedy, and occasionally successful. But the means that most aids the re-absorption of blood extravasation, is again *compression* and *rest* of the parts. Hence it is best to envelop the parts in moist bandages, and over them apply wet cloths, which are to be renewed every three or four hours.

If, by this treatment, a circumscribed extravasation does not change considerably in the course of a fortnight, the swelling should be painted once or twice daily, with dilute tincture of iodine:

99. R. Tincturæ iodinii comp.,
Alcoholis, āā partes equales.
Compression should be continued with a suitable bandage.

In spite of this, should the surface become hot, and the skin red and painful, we must expect suppuration. In order to hasten this change, which cannot then be avoided, we may apply warm fomentations, and quietly await the further course. Unless the symptoms are threatening, such as high fever and chills, it is best calmly to await perforation by the natural process of the thinning of the wall of the abscess, and not to hasten it with the bistoury.

NOTES ON REMEDIES.

Acetum. A lotion of vinegar and common salt is a popular and useful application to bruises. With muriate of ammonia and alcohol, it forms one of the most esteemed discutient lotions. (F. 40.)

Alcohol is one of the most useful of all lotions to prevent a blackening from following a blow. The part should be bathed with it, and cloths freely wet with it constantly applied. With equal parts of white of eggs, it is a soothing application to bruised parts which are excoriated.

Alumen, in solution, acts as an astringent discutient.

Ammonii Chloridum is one of the most energetic sorbefacients known. It may advantageously be combined with camphor, soap or alcohol. (F. 47.)

Aqua. Water dressings are often called for.

Arnica. Much difference of opinion prevails in regard to the value of arnica. Dr. LOEFFLER and many other German writers esteem it highly. The hot infusion is said to act more surely than the tincture, and the flowers than the root. Its best use is after the first effects of the injury are over. A convenient formula is :

100. R.	Tincturæ florum arnicæ,	āā	f. ℥ j	
	Aceti,		f. ℥ j	
	Aquæ camphoræ,			M.

For a lotion.

Bryonia is much used by pugilists, etc. (See page 128.)

Camphora. When parts are excessively contused, they generally require stimulating applications, one of the best of which is spirits of camphor.

Capsicum. A strong tincture of capsicum, repeatedly painted on the part, is said to dispel the discolorations from bruises, often quite rapidly.

Hypericum Perforatum. The medical properties of the St. John's wort deserve more attention than they have received from physicians. The *oleum hyperici*, once officinal, now better known as *red oil*, is still largely used and justly esteemed in country districts as a sovereign application for bruises.

Iodinium is a valuable discutient. (See above.)

Plumbi Subacetat. Goulard's extract, properly diluted, is an exceedingly useful cooling lotion. It may be united with conium (F. 46), with alcohol (F. 42), or with ammonia, as for example :

101. R.	Liquoris ammoniæ acetatis,	f. ℥ j	
	Liquoris plumbi subacetatis,	f. ℥ iss	
	Aquæ,	Oj.	M.

For a lotion.

Sodii Boras is a useful refrigerant addition. (F. 44.)

Sulphurosum Acidum is esteemed by some. (F. 51.)

PUNCTURED WOUNDS.

This variety of wound is apt to cause more hesitation as to the proper mode of procedure than any other form, from the uncertainty as to the condition of the wound in its deeper parts. Given a punctured wound not involving any vital or important structures, the question of the cleanliness of the track of the wound first presents itself to the surgeon. The character of the instrument penetrating should be at once taken into consideration; if it be a clean, bright blade, the probabilities are that the wound inflicted is also clean, unless particles of clothing have been carried in (a rather unusual occurrence in stab wounds inflicted with sharp-pointed weapons), or dirt has in some way subsequently been introduced. In case examination of the instrument, the wound and the general surroundings, convince the surgeon of the probable cleanliness of the wound to be dealt with, and there be no hemorrhage of any consequence to be checked, there can be but little doubt but that the most practical indication is to apply some antiseptic ointment or moist antiseptic dressing, covering the whole with a light compress, and fixing the parts and making deep pressure by means of a firm bandage, keeping, of course, in mind the position of the part and the circumstances favoring free circulation.

Where, on the contrary, the wound has been inflicted with an unclean instrument, where besides the penetration there are more or less contusion and devitalization of the tissues, and where consequently there may be expected more or less discharge from the action of micro-organisms and from the discharge of broken-down structures, the question of drainage is imperatively presented for decision. In this particular rather than any other do punctured wounds constitute a separate class—the difficulty of drainage. If it be possible without great disturbance of the wound to insert a fine, soft tube into the deep parts of the wound, it should be well washed with some of the antiseptic solutions mentioned in a previous section; and then the same dressing as above suggested may with confidence be applied. If the wound be slight and even if there be a possibility of some infection—not certainty—or some degree of contusion, it may be regarded justifiable to proceed in the same manner if a constant and close watch be kept for symptoms indicating the retention of injurious material. Where there are evidences

of such pent up substance, swelling and tension of the part, pain, heat and redness about the wounded site, or any general bodily elevation of temperature, indicating absorption of septic matter, the dressings must be at once removed and provisions for drainage promptly made. It may be that the external orifice has closed and simply needs reopening, or the original opening may be enlarged, or a counter-opening made, as the surgeon may see fit. Where the symptoms are clear, and even in the beginning if there is probability of infection of the wound, it is wise and safe practice to lay the track of the injury open by a clean incision, and employ the treatment suitable for an incised wound. So in poisoned punctured wounds a free incision is demanded, and thorough cleansing from the traces of poisonous material.

In punctured wounds involving large vessels or vital structures, a free exploratory incision to afford opportunity of reaching and treating whatever serious damage has been done, is imperative. The treatment in all such cases must be based on that laid down for an ordinary deep incised wound, keeping uppermost in the mind the principles of absolute cleanliness.

SUBCUTANEOUS WOUNDS.

This group of wounds, which formerly were regarded as a most important class, and indeed in their consideration constituted what is known as *subcutaneous surgery*, really may be classed logically with such other varieties of injuries as contusions, simple fracture of bones, and punctured wounds. The operative subcutaneous wounds may be regarded in the latter light. It has been long known that wounds even of some magnitude, if not attended by breaking of the skin continuity, are apt to repair with little constitutional disturbance and with little ultimate damage to the part. This in the light of the surgical knowledge possessed at the present day is because of the exclusion of the harmful micro-organisms with which open wounds are apt to come in contact. So in subcutaneous surgery if the adherence to the principles of antiseptic or aseptic surgery be at all complete, of rative wounds may be inflicted of considerable importance, with little likelihood of any serious after-results from suppurative disease. The skin over the part to be operated upon

having been thoroughly washed with soap, water and a *steele* brush, then washed with a 1:1000 solution of bichloride of mercury, the knife used being thoroughly sterile, the hands of the operator likewise aseptic, there need be no fear of ready repair of the parts divided by subcutaneous incisions, if the opening be quickly closed with a sterile dressing of some kind, sufficient to prevent atmospheric contamination.

GUNSHOT WOUNDS.

DR. FRIEDERICH ESMARCH, OF KIEL.

In the immediate treatment of gunshot wounds of all kinds, this distinguished surgeon earnestly discountenances any and all probing or searching for the ball or fragments of bone, clothing, etc. He claims that it is wholly needless, and positively dangerous, to examine the wound with the fingers in any manner, as this procedure is certain to introduce septic germs. He urges that, at any rate, the extraction of fragments and balls may certainly be postponed until the patient arrives at the hospital; and even there he would postpone the digital examination until symptoms begin to appear which demand surgical interference, as suppuration, traumatic fever, etc. When these do appear, he would put the patient under the influence of an anæsthetic, and after thoroughly examining the wound, observing all the precautions of the antiseptic method, would endeavor to place the wound under the most favorable condition. If no such symptoms appear, he would assume that no excitants of decomposition had entered the wound, and should be very careful not to disturb it, simply placing an antiseptic covering over the original dressing.

The point of greatest importance in surgical practice for the immediate treatment is the attempt to render all injured bones and joints immovable; and to fix the indications for this method of treatment, it is not necessary to introduce the finger into the wound. All that remains is the application of the first dressing, and here, from an antiseptic standpoint, it must be insisted upon that nothing be brought in contact with the fresh wound that can make it worse. Do not examine the wound at all, rather than examine it with unclean fingers. Do not cleanse the wound at all, rather than use un-

clean water and sponges. Do not dress the wound at all, rather than use unclean material. But everything is unclean, in the strict sense, that is not antiseptic. Every dressing used should be impregnated with some form of antiseptic, and the rules of antiseptic surgery followed rigidly in the entire treatment.

The first dressing, of course, remains until the patient arrives at the hospital, nor it is to be removed then, unless a bad odor or other symptoms (fever or pain) demand a change of dressing. If these do not appear, we may expect an aseptic healing under the scab, and content ourselves with simply placing an aseptic covering over the outer layer.

A most important inquiry arises, therefore, in the following form: How is a wound to be treated on the field of battle, in order to guard against these pernicious putrefactive influences? This question PROF. ESMARCH has sought to answer by requiring that the wounds shall not be touched by the hands, but closed rapidly by antiseptic plugs, in order to preserve them from the contact of putrefactive agents until they can undergo the LISTER treatment in the hospitals, if necessary. For this purpose, he proposes that every soldier should carry in the lining of his uniform two balls of *salicylated jute*, wrapped up in gauze.

Of all antiseptics, salicylic acid seems best suited for the purpose, not being fluid, retaining its power longest, easy to procure and to stow away: so that, while packing these balls away in the soldier's uniform is a doubtful procedure, yet the bearers and the surgeons should be supplied with an ample stock. Perhaps room might be found for stowing away in the soldier's knapsack these salicylated plugs.

If the balls are not filled too full, and are made with salicylated gauze and wadding or jute, they will be found of great practical use. By reason of the lasting action of salicylic acid, a wound may in this way be protected from septic influences for several days. Often a sort of healing process will have been already set up, so that the adherent plug will sometimes have to be left in, complete healing of superficial wounds taking place in this way when there is no foreign body present. In other cases, when the periphery of the wound has been carefully cleansed, the plug is removed; and after foreign bodies have been sought for, and a drainage-tube introduced, the wound is treated by LISTER'S dressing. The course and final results of cases so treated far surpass anything that has yet been met with in military surgery.

It may be added that the search for the ball, needless at all times, is now generally recognized to be especially fraught with danger in wounds of the thoracic or abdominal cavities. The best and most trustworthy doctrine on this subject has been well expressed in these words by Dr. WILLIAM S. FORBES, of Philadelphia: "The practice of probing gunshot wounds of the great cavities of the body for missiles, or, indeed, for any purpose whatsoever, is entirely at variance with the principle of rest, and is as pernicious as possible."

The above observations are especially important, as leading American treatises on surgery still continue to recommend the early extraction of balls, probing of the wound with the finger, etc.

DR. PAUL R. BROWN, U. S. ARMY.

This surgeon in presenting a series of records of gunshot wounds (*Medical News*, 1891,) occurring in recent years in the course of his military practice, demands particular attention to the differences to be met in wounds from the modern rifle ball and those formerly met with in military surgery, as well as those occasionally met at present in civil practice. These heavy bullets propelled by large charges of powder are efficient at a distance of more than a mile; and when they enter the body not only do they do damage themselves, but every particle with which they meet becomes in turn a projectile. As a consequence, in a wound inflicted by such a missile not only does the surgeon have to consider the immediate wound, but a very large area of contused, devitalized tissue. Often these serious contusions cannot be recognized at first, and only exhibit their lack of vitality after some hours or days. He concludes that these circumstances should modify the conservative spirit in surgery by which temporization is commended in cases where capital operations are demanded.

PROF. JOHN B. DEEVER, OF PHILADELPHIA.

In a case of severe gunshot injury of the knee (*University Med. Magazine*, 1892,) the following plan of treatment was carried out with the happiest results. The wound was cleansed carefully of the shot and shreds of clothing, the ragged and powder-stained edges of the wound were trimmed up with a scissors, and the fragments of bone removed. This was done with care, the surgeon and his assistants being aseptically prepared as far as their hands, instruments, etc., were concerned. The wound was then thoroughly irrigated

with a solution of bichloride of mercury (1:2000) and several drainage tubes were inserted. Wet bichloride gauze was laid over the surface, and over this Dr. DEEVER instructed that a stream of bichloride (1:3000) solution should constantly play. This treatment was persisted in, the gauze being changed daily and the drainage tubes cleansed; and the sloughed tissue, the sloughing having gone on continuously but inodorously, was carefully removed from time to time as fresh gauze was applied. At the end of seven weeks all evidences of acute inflammatory mischief having subsided, the irrigation was suspended and the wound dressed with an ordinary antiseptic dressing, which was renewed every four or five days. The patient from the beginning was in a mild state of septicæmia, and internal medication with iron, quinine and whiskey was pursued. His diet was largely milk at first, and during the entire course of treatment, after the period when inflammatory reaction in the wound was feared, the diet was purposely continued of a highly nutritious character.

PROF. P. S. CONNER, OF CINCINNATI.

This writer in the *International Encyclopedia of Surgery*, in speaking of the after-treatment of gunshot wounds, says that aside from the relief of pain and shock, and the arresting of hemorrhage, the general treatment of gunshot wounds in general is very simple, being directed especially toward the moderation of inflammation and the prevention of any of the secondary, local or general infections. The maintenance of rest, whether by position, or by immobilization, or by skillful bandaging, is of great importance. The application of cold by wet cloths, by irrigation, by ice bags, is usually found comfortable to the patient and tending to prevent inflammation. However, the application of cold by any of these methods is to be held within reason, and should not be adhered to longer than is necessary to moderate or prevent the primary inflammatory stage; where it is continued beyond this, it only retards reparative tendencies. To afford a free drainage and to prevent strangulation of the deeper parts of the wound, a number of surgeons advocate the enlargement of the track of the ball by incision, but Dr. CONNER does not entirely approve of such a procedure unless there be an actual indication existing for it. Nor does he approve of the trimming of the edges and immediate coaptation so as to form primary union, as both "reason and experience protest" against such endeavor, since in

this way there may be confined in the deeper parts of the wound those degenerative substances whose expulsion is of so great a necessity for the comfort and welfare of the patient.

Ordinary hygienic measures are of extreme value in their observance—the cleanliness of the part, the person and the surroundings, sufficient fresh air, prevention of overcrowding, isolation of cases of infection, proper food in proper amount. “A very large percentage of the deaths from gunshot injury are from preventable causes or causes that would be preventable were it not for the exigencies of military service. Though it must necessarily be of primary importance to cripple and destroy the enemy, and only of secondary importance to save the wounded, yet there is no good reason for crowding men into churches, and barracks, and warehouses, and still less for continuing the occupation of such buildings as hospitals, long after they have become hot-beds of infection.”

SABRE WOUNDS.

COL. J. H. BILL, M. D., U. S. A.

This writer in the *International Surgical Encyclopædia*, in speaking of wounds produced by this class of instruments, remarks that they are quite infrequent in warfare. So, too, in case of bayonet wounds. Indeed, of so little consequence in battle have these two weapons become, that it has been seriously urged more than once that both weapons be discarded. So averse are soldiers to the actual use of the bayonet, that even with the bayonet resting against the body of the opponent, it is well known that often the killing is done with the bullet. The sabre is a heavy weapon, wielded with no special rapidity and easily guarded against as it is usually used. Soldiers are theoretically instructed to use the point, but in the heat of battle if it is used at all the edge is employed, the effort being to deliver a sweeping cut. As the edge is usually no sharper than the back of a table knife, the enemy can easily ward off the blow with the forearm well protected by the blanket or some similar padding. Sabre wounds are not often received on the portions of the body which are protected by clothes, but are generally found about the face, neck and head. Most of the wounds from this instrument are upon the

scalp, because of its prominent position, although the military caps doubtless prevent many more. The superficial wounds usually unite without difficulty, the deeper ones alone requiring care. Not infrequently a circular plate of bone is completely detached from the skull and left hanging by a portion of scalp. The editor recalls a scalp wound in which almost the entire frontal bone was removed from the skull by a downward and forward blow of a sabre, the cut extending into the nasal bones. This last case was of course a fatal one. Surgeon BILL suggests that in cases where the bone is thus detached, it be dissected out, saving the pericranium if possible, and the soft parts then held in position by a sufficiency of antiseptic stitches, the details of the treatment being carefully carried out upon antiseptic principles.

When the sabre or sword is sharp-edged, as in dueling weapons, and where every attempt is made to disable rather than to kill the antagonist, the surgeon has to deal with ordinary incised wounds. As they are not infrequently of the flexor surface of the forearm, made in attempt to cut the flexor tendons and thus render the sword arm powerless, it becomes necessary to secure the cut vessels and place the arm in position to approximate the edges of the wound. The cut tendons are to be stitched together with antiseptic catgut; and the antiseptic method of treatment of the wound rigidly adhered to.

Where the wound is punctured, as from the bayonet, of course its gravity depends upon its depth and position. There are no special features to be considered, however, differing from the outline laid down under the heading of punctured wounds.

ARROW WOUNDS.

The gentleman just quoted devotes considerable attention to this class of injuries. He considers at some length the nature of the wounds inflicted by arrows and their gravity, and urges in conclusion that the arrow-head must be removed as soon as found in a wound, inasmuch as the encapsulation of an arrow-head is almost impossible. He states that he has not known any buried arrow-heads which did not, sooner or later, require a secondary operation for their removal, from their menace to life or to the usefulness of the part in which they were imbedded. In the search for the arrow-

head, from the peculiarly great penetrative power of arrows, it may be necessary, and is quite justifiable, to make extensive incisions. He remarks the great difficulty in removing the arrow-head, particularly if the shaft has been broken off, and advises the use of strong and heavy forceps for any attempt to withdraw them. Often it will be found better, because of the barbed condition of the head, to push the arrow through the part penetrated rather than to attempt its withdrawal. The shape and size of the missile is sufficient to account for the frequent rather serious hemorrhage met in these wounds. Sometimes where a soft iron arrow-head happens to bury itself beneath the periosteum of a bone or beneath some other dense tissue near bone, it will eventually be bent quite out of shape, and then its removal becomes even more difficult. Dr. BILL recommends that, in the search for the arrow-head, if the shaft be broken off, the patient be placed in the position which he occupied when he received the injury; that the wound be injected with carbolized oil, to antisepticize the passage and to deaden the poison. Then a probe is passed into the wound in search of the passage, and if it should fail of this and make a false one, it is to be left in place and another used until the true path be met. The head is then grasped by a strong pair of suitably shaped forceps, and withdrawn. The hemorrhage is to be checked, and every effort and antiseptic measure attempted to have rapid healing. "The surgeon should strive to comfort the patient. Although arrow wounds are not attended with much shock, they are usually the cause of great depression of spirits." COUES, quoted by the above authority (*Med. and Surg. Reporter*, April, 1866), states that "the constitutional disturbances following these wounds * * * are liable to be out of all proportion to the apparent amount of damage. There are almost always considerable * * * sleeplessness and great irritability, dejection of spirits and intolerance of pain. The tendency to despondency becomes frequently a prominent symptom, to be carefully combated, and everything should be done to cheer the patient."

BITES AND STINGS.

In a general way tooth wounds are to be regarded as punctured wounds as a rule, and are, in almost every instance, contused, and

may be lacerated. Each is to be dealt with upon its own status as such a wound, where the question of poison does not enter. As a rule even in non-poisoned bites there is a marked tendency to depression, amounting almost to shock in some instances. Every wound from bites by healthy animals should, however, receive particular attention, and the most careful antisepsis should be adhered to in its treatment, irrigation by strong antiseptic solutions being highly advisable. The greatest interest in connection with tooth wounds is manifest in the treatment of *hydrophobia* from the bites of rabid animals, and the treatment of the poisoning from snake bites.

HYDROPHOBIA.

While it was formerly believed that hydrophobia was a necessarily fatal disease when once the victim had been inoculated with the virus from the teeth of a rabid dog or other animal, it is now well established that but a small proportion of those persons said to have been bitten ever manifest any symptoms of the malady. Moreover, from the excellent work of the famous French bacteriologist, PASTEUR, it has been demonstrated that the disease is quite amenable to preventive cure. These investigations by PASTEUR and a host of observers all over the world indicate that the disease is due to a special virus, which possesses the property of living organisms. Its mode of action, occurrence in animals usually after a bite-inoculation from a previously diseased animal, its development after a period of incubation, the possibility of inducing it artificially by inoculating animals under the dura of the brain, medulla or cord with portions taken from the central nervous system of a previously diseased animal, all these point strongly to the microbic nature of the affection. This is, however, by no means to be accepted as definitely proven.

PASTEUR has in recent years conferred an inestimable boon upon humanity by his discovery of a method of preventive inoculation. As this means can probably never be used outside of specially arranged and conducted establishments having this definite purpose in view for their existence, it is not necessary to describe this method save in a general outline.

PASTEUR having noted the similarities existing in this affection and many of the infectious diseases, and recalling the possibility of altering the virus of certain of these latter maladies by special methods of bacteriological technique, instituted a series of experiments

to discover, if possible, the micro-organisms causing the hydrophobia, as well as some means of lowering their intensity, and thus providing some "vaccination" material by which the development might be counteracted. The former of these objects was not accomplished, but he found that thorough drying and heating of the spinal cords of animals having hydrophobia was sufficient to prevent inoculations with these cords from producing the disease in a healthy animal. Further, it was found that not only was the second animal not attacked by hydrophobia after inoculation by virulent matter thus heated and dried, but it was protected by this first inoculation against all subsequent inoculations with the fresh, unchanged virus. This knowledge has been put to practical advantage in the various Pasteur Institutes, where by constant inoculation the disease is perpetuated in experimental animals. The cord of such an animal is removed and hung in a long jar having chloride of lime in the bottom to absorb all moisture and render the atmosphere in the jar quite dry. In this condition the jar is submitted to a slightly elevated temperature for a time, and the dried cord is used in solution for inoculation into the human subject. Inasmuch as the period of incubation of the disease is usually protracted, persons who have been bitten by a rabid animal may generally be transferred even for long distances to these institutes, and there treated by competent persons before the disease manifests itself. There has been much opposition from various sources against this method of treatment; in fact, many of the persons thus antagonizing the method refuse to accept the existence of such a disease. The general opinion of the profession is, however, not in accord with such views, and the statistics of treatment from the authorities are such that it is scarcely possible for an unbiased person to do less than accept the teachings of PASTEUR on the subject as true.

Recently WYRSYKOWSKI (*Med. News*, 1891,) has demonstrated that the gastric juice is capable of neutralizing the toxicity of the virus of hydrophobia. For this purpose he prepared three test tubes, one containing egg albumen and gastric juice, and each of the other two an emulsion of the medulla of a rabbit dead of hydrophobia, the one with, the other without the gastric juice. Of animals inoculated beneath the dura with these substances, those inoculated with the digested albumen were not harmed; those inoculated with the undigested virus all died; those inoculated with the digested medullary substance all lived. This result is extremely suggestive, and might well be made the basis for actual therapeutic measures.

MR. YOUATT.

The preventative treatment recommended by this eminent veterinarian has been strongly endorsed by such surgeons as Dr. J. MASON WARREN, of Boston, and NATHAN R. SMITH, of Baltimore. He says:

"The wound should be thoroughly washed and cleansed as soon as possible after the bite is inflicted; *no sucking* of the parts, as is advised by many for the purpose of extracting the poison, as the presence of a small abrasion on the lips or the interior of the mouth would most assuredly subject the parts to inoculation. If the wound is ragged, the edges may be taken off with a pair of sharp scissors. The wound must then be thoroughly cauterized with *nitrate of silver*, being sure to introduce the caustic into the very depth of the wound, so that it will reach every particle of poison that may have insinuated itself into the flesh. If the wound is too small to admit of the stick of caustic, it may be enlarged by the knife, taking care, however, not to carry the poison into the flesh cut, which can be avoided by wiping the knife at each incision. Should the wound be made on any of the limbs, a bandage may be placed around it during the application of these remedies, the more effectually to prevent absorption by the veins. Nitrate of silver is a powerful neutralizer of specific poison, and the parts will soon come away with the slough; no dressings being necessary, except, perhaps, olive oil, if there should be much inflammation of the parts. If the above plan be pursued, the patient need be under no apprehension of the result, but make his mind perfectly easy on the subject."

PROF. WM. S. FORBES, OF JEFFERSON MEDICAL COLLEGE.

In a valuable article contributed by this authority to the *Encyclopædia of Surgery*, he highly recommends the use of nitrite of amyl, detailing a case in which its beneficial influence was very marked. The remedy, applied as it usually is by causing the patient to inhale a few drops from a handkerchief held up before his face, causes the relaxation of the spasms which are so marked and so distressing a feature of the malady, the relaxation being sufficient to permit the patient to swallow food and drink. He advises that as soon as the symptoms of the affection become manifest the patient be placed in a cool, darkened and quiet room, and be exposed to as few sources of irritation as possible. The strength must be

kept up by such concentrated food and stimulus as may be taken, or by nutritious enemata.

He also refers to the successful use of inhalations of oxygen by Drs. SCHMIDT and ZEBENDEN in the case of a little girl bitten in the hand by a rabid dog. The wound had been cauterized, and healed kindly; but in several weeks symptoms of the disease became pronounced. The above physicians caused the patient to inhale three cubic feet of oxygen, when the spasms disappeared and the child became calm. Two days later the symptoms reappeared, but after inhalation of oxygen for forty-five minutes they disappeared again and never recurred.

DR. SHINKWIN, SURGEON TO THE CORK INFIRMARY, IRELAND.

This writer, in a recent treatise on the disease (*Dublin Medical Journal*, February, 1876), reviewing the remedial agents employed in the treatment of hydrophobia, enumerates no less than 228 vegetable substances; and under the heading of "acids, alkalies, salts, bases," etc., 46; besides a host of such nauseous doses as "pounded ants, badger soup, the excrement of a calf, the brains and comb of a cock, the eyes of a crab, coral, tail of a shrew, shells of the male oyster," etc., etc. The preliminary treatment of the wound should be that hereafter given for the bites of venomous serpents.

"In all cases of bites caused by dogs, wolves, cats or foxes," observes Dr. SHINKWIN, "the parts should, if possible, be deeply and completely excised, and the cut surfaces freely, even brutally cauterized." With regard to the cauterizing agent, he thinks that "a preference should be given to those that are fluid or deliquesce rapidly, as their action is more evenly diffused over the entire surface than when nitrate of silver or the red-hot iron is used." And he is of opinion that "in all cases, anæsthesia should first be produced by chloroform, as the action of the caustic on the recent and often extensive cut surface often produces a prolonged and even dangerous agony." He states that if a person has been bitten by a dog in whom there are good reasons for expecting madness to exist, excision, or even amputation of the part, should be performed, if this can be done "without endangering life or depriving the individual of a member essential to the attainment of his livelihood."

"When the disease has been developed," says Dr. SHINKWIN, "the treatment by *transfusion of blood* appears to be the most rational and the most likely to succeed." He mentions that this

operation was practised by Dr. FIVE, of Suffolk, in 1792, who bled a man aged seventeen until blood no longer flowed, and then transfused into him blood from two lambs, and the patient completely recovered.

MR. G. D. M'REDDIE, OF WANSTEAD, ENGLAND.

This surgeon reports (*Indian Medical Record*, 1876,) the cure of a case of hydrophobia by rapid salivation induced by the fumes of calomel. The fumigation should be conducted as follows: The patient is to be undressed, seated on a cane-chair, and the whole body up to the neck enveloped in blankets. Under the chair a Langston Parker's lamp (Savigny) is placed. In this a spirit-lamp, holding the required amount of spirit, is protected in a cage, on the top of which is a receptacle for the calomel (twenty or thirty grains) and a saucer for water. The flame beneath boils the water and volatilizes the calomel. Moderate salivation, which is all that is required, may be induced in a quarter of an hour, and judiciously repeated if the symptoms seem benefited by the treatment.

DR. GRYMZALA, OF RUSSIA.

Dr. GRYMZALA, of Krivo Ozero, Podolie (*Journal de Thérapietique*, 1876), claims to have successfully treated ninety-nine cases of bites by hydrophobic animals with the leaves of *Xanthium spinosum*. This drug possesses sudorific, sialogogue, and slight diuretic properties. The dose for an adult is 60 cg. of dry powder of the leaves, repeated three times a day; half the quantity is sufficient for children under twelve years.

A fluid extract of *Xanthium spinosum* is now manufactured, and can be had from leading druggists in the United States.

DR. JOHN IMRAY, DOMINICA, WEST INDIES.

102.	R.	Chloral. hydratis,	gr. xxx	
		Liquoris opii sedativi (B. Ph.),	gtt. x	
		Amyli,	q. s.	M.

For one injection. Repeat every hour until sleep is produced.

This author says (*Medical Times and Gazette*, May, 1876), the power of these combined drugs in controlling and repressing spasmodic action is very remarkable. It appears as if a power stronger than that of the disease forcibly represses the morbid action, like a heavy weight placed on a spring, and if the pressure yields, the

spring begins to rise; but being constantly maintained, the morbid nervous phenomena gradually give way, and finally the disease is vanquished.

Dr. MAXWELL (*Indian Journal of Medical and Physical Science*) recommends the following plan when premonitory symptoms are first observed: 1. That the original cicatrix be freely laid open, and suppuration from it speedily and freely produced and maintained for several months. 2. The nerves or nerve leading to the part are to be divided without delay, the more remote from the wound the better. 3. Free perspiration by the hot-air bath. 4. Bleeding from the arm to syncope in robust persons.

NOTES ON REMEDIES.

Amyl Nitrite. The inhalation of this powerful anti-spasmodic was used in a case reported by Dr. CLEEMAN, of Virginia, with much benefit, but was not carried out, owing to the opposition of the patient. (See p. 142.)

Belladonna. KICHENSKY (*Bull. Gén. de Thérap.*, 1888,) reports a case of recovery in a woman bitten by a mad dog five weeks before her admission to the hospital. The usual symptoms were present. She was placed in a warm bath and bled until syncope appeared, 14 ounces of blood being withdrawn. Afterwards, for two days she was given 160 grains of powdered belladonna leaves, and on the third day the hydrophobia ceased.

Camphor, as monobromate of camphor, is credited with having curative power by some authorities.

Cannabis Indica is asserted by Prof. POLLI, of Milan, to be the best palliative, though not curative.

Chloral Hydrate is undoubtedly of service in this affection, its administration tending to lessen the impressions from without upon the excited central nervous system. It should be administered in full doses, and if refused by the mouth, persisted in by rectal injection.

Chloroform is considered by Dr. HENRY HARTSHORNE to be the most satisfactory agent to promote the euthanasia, which he believes to be the extent of our ability in such cases. He administers it freely by inhalation all the time till death ensues.

Curara, see Woorara.

Hydrargyrum Chloridum Mite. Mr. McREDDIE reports a cure by calomel fumigations. (P. 144.) Another cure is reported in the *American Journal of the Medical Sciences*, Vol. XXXIX, p. 96, from drachm doses of calomel. It is reported by Dr. LIGGET. Another cure by the same means is recorded in the *Lancet*, Vol. VI, p. 213, American

edition. This combination of authorities gives fair grounds for the belief that in some instances mercurials are really efficacious, and should encourage their further use.

Faborandi. As the poison appears to pass out of the system by the salivary glands, the use of this powerful sialagogue is suggested.

Oxygen. Inhalations of oxygen have been found to relieve greatly the cyanosis and spasms. Dr. LASCHKEWITSCH (*Gazette Médicale*, Paris, 1872, No. L.), has administered inhalations of oxygen to a peasant who, ten weeks before, had been bitten by a mad wolf. The tetanic muscular contractions ceased, the cyanosis disappeared, and the exacerbations of violence gave place to a quiet, gentle condition. Notwithstanding the fatal result (due, probably, to the inattention of the nurses, who discontinued the oxygen inhalations), the author recommends the use of this agent to the attention of the profession. (See p. 143.)

Pepsin, if applied immediately to the wound, is said to have the power of neutralizing the poison of rabies. (Dr. A. V. FORGEY, *Cinn. Lancet*, June, 1878.)

Potassii Bromidum. In combination with chloral this remedy should be administered with utmost freedom in this disease. As the chloral tends to prevent the recognition of external impressions which would increase the excitement of the central nervous system, the bromide would tend to inhibit the force of the motor explosion, the spasm. It has been commended by DUBOÛÉ given in intravenous injection. CULVER recommends the intravenous injection of saline solutions generally.

Scutellaria has a popular reputation deserving of some consideration.

Woorara. In the *American Journal of the Medical Sciences*, July, 1876, Dr. B. A. WATSON, of Jersey City, N. J., reports a cure by hypodermic injections of strychnia and woorara, a method which in other hands has failed. But generally the dose used has been too small. From $\frac{1}{4}$ to $\frac{1}{2}$ grain should be exhibited hypodermically every three hours, to have any positive effect. The following formula is proposed by Mr. MOSS, as best meeting the requirements of the case.

HYPODERMIC INJECTION OF CURARE.

103. R. Curare,
Water,

gr. j
℥xij.

Dissolve; let the solution stand forty-eight hours, and filter.

Using this solution, two-thirds, a half, third or quarter of a grain may be given in a whole number of minims. Of the other strengths likely to suggest themselves, viz., one in ten and one in fifteen, the first would only allow of a tenth, and a half of a grain; and the second, of

a fifteenth, a third and two-thirds of a grain, being given in the same way. The accounts of the use of curare seem to indicate that the dose is from a quarter to half a grain.

Caution.—Curare requires to be handled with the utmost care. It should not be allowed to come in contact with a fresh cut or scratch. Two good rules would be never to powder it in the dry condition, and never to touch it with the naked fingers.

Xanthium Spinosum is a recent aspirant for favor. (See p. 144.)

EXTERNAL REMEDIES.

Cold. This has been recommended to be applied to the spine in the form of an ice-bag, and indeed it would seem a sensible practice to in every way determine the circulation away from the central nervous system.

The Vapor-Bath. By various authors the use of the vapor-bath has been recommended as an efficient preventive. Dr. BUISSON, of Paris, relates that in his own case he succeeded in aborting the symptoms of an acute hydrophobic attack by a vapor or Russian bath. He recommends that it should be rapidly raised to a temperature of 57° Cent., then gradually to 63° Cent. (*Medical and Surgical Reporter*, April, 1869). A case has been reported by Dr. HORACE MANLEY, of New York, which both the symptoms and history identify as one of undoubted hydrophobia, which was completely cured by bleeding to 30 ounces and placing for four hours in a vapor-bath heated to 140° Fah. (*Transactions of the American Medical Association*, Vol. IX., p. 335.)

Tracheotomy has been very strongly urged in this malady by Dr. WASHINGTON ATLEE, of Philadelphia. (*Trans. Am. Med. Assoc.*, Vol. IX., p. 220.) He believes the spasms of the glottis, the constriction of the chest, the difficulty of deglutition, the sense of suffocation and the intense anxiety and distress would vanish, and the administration of remedies and the taking of drink be rendered comparatively easy. Prof. PACCANTI, of Pisa, performed this operation in a case, but the patient died with symptoms of paralysis of the muscles of respiration.

SNAKE BITES.

The immediate treatment of the bites of venomous serpents, and other dangerous poisoned bites, embraces the following steps, to be attended to in the order given:

1. *Ligation* of the part or limb as tightly as possible, a short distance above the wound. Drs. BRUNTON and FAYRER recommend that the bandage, after the wound is dressed, should be loosened only an instant or two at a time, so that the poison thus absorbed into the general circulation may be excreted by the kidneys before another quantity enters the blood.

2. *Washing* the part thoroughly with water, or soap and water.
3. *Excision* of the tissues in the immediate vicinity of the bite; or, if this is not practicable, enlargement of the wound and scarification.
4. *Suction*, either by the mouth or a cupping-glass. This should be continued as long as any blood can be obtained, say twenty minutes to half an hour.
5. *Cauterization* with nitrate of silver, chloride of zinc, carbolic acid, the mineral acids, or the actual cautery, the most convenient form of which is often a live coal or the incandescent end of a dry stick.

The subsequent dressing may be of warm water, medicated with laudanum and acetate of lead; cloths dipped in olive oil; a light cataplasm medicated with ammonia; cold compresses or ice.

The general constitutional treatment should pursue the following course:

1. *Stimulation* must be resorted to early and freely. In rattle-snake bites, for example, two ounces of whisky should be given every ten minutes until signs of inebriation appear. A powerful diffusible stimulant is the spiritus ammoniæ aromaticus; it may advantageously be combined with the alcohol, the amount given being a full dose, f.5j, every twenty minutes. Anodynes may be added, or given by the rectum, to allay pain and fear.

2. *Antidotes* are called for, when any such are known. The formulæ of a number of compounds alleged to be of this character will be given below.

3. *Enforced Exercise* is of the utmost importance when there is threatening stupor and numbness. It should be violent and prolonged, as running, vigorous rowing, etc.

4. *Artificial Respiration*, by any of the approved mechanical methods, or by employing galvanism or electricity, should be resorted to when the lethargic action of the poison threatens the respiratory movements. The patient may thus be kept alive until stimulants and antidotes overcome the venom. Sinapisms to the epigastrium, and the cold douche, poured from a height of six or eight feet upon the head, are also efficient means to this end. Dr. FAYRER recommends artificial respiration to be kept up for hours, and even days, believing that if this is done the system may combat and throw off the poison by excretion.

PROF. HALFORD, M. D., OF AUSTRALIA.

The treatment recommended by this surgeon in poisonous bites from venomous serpents, spiders, etc., is the injection of the liquor ammoniæ fortior, diluted with two or three times its bulk of water. Of this mixture, 20 to 30 drops are to be injected into one of the large veins, as near to the bite as possible. If the symptoms are relieved, but the patient seems still in danger, the injection may be repeated as soon as the operator deems it prudent.

Although this method of treatment seemed to fail in Prof. FAYRER'S hands in India, there can be no doubt it has repeatedly succeeded in Australia and America. Mr. T. HOLMES says on this subject: "I must say that to my mind it is quite clear that Prof. HALFORD'S treatment, whether sufficiently energetic or not to combat the virus of the most deadly serpents, has acted beneficially and has saved life in many of the bites of Australian serpents, and deserves to be fully tested in those of other countries." (*System of Surgery*, 1876.) The more recent reports from Australia do not fully bear out those previously sent, but there is no reasonable doubt that ammonia in this form would act as a powerful revulsive, and no hesitation should be had in resorting to this measure when called for.

As used by Dr. A. S. TODD, of Virginia (*Trans. Va. State Med. Soc.*, 1872), the liquor ammoniæ is mixed with flaxseed meal or slippery elm bark, to make a cataplasm, and applied to the part; while internally the patient is given liquor ammoniæ aromaticus f.5j, in a wineglass of water, every three hours.

Prof. BRAINARD, of Chicago, made a series of experiments with the following:

104. R.	Iodinii, Potassii iodidi, Aquæ destillatæ,	gr. v gr. xv f. 3j.	M.
Use as hypodermic injection.			

His directions are to place a cupping-glass over the wound, and pass the nozzle of the syringe beneath the skin under the edges of the cup, throwing in sufficient of the above to "infiltrate the tissues."

PROF. KAUFMANN.

In a paper describing his experiments upon the bites of venomous snakes (*Rev. Scientifique; Indian Med. Gaz.*, 1890; *Med. News*, 1890) this authority advises that if a limb be bitten it should be

tightly bound above the seat of injury as quickly as possible with anything that can exert strong constriction. Then a one or two per cent. solution of chromic acid should be injected deep into the wound, and several similar injections should be made into the tissues around the wound. These efforts are made with the purpose of destroying the poison before its absorption. If there is much swelling, the swollen part should be injected in different parts and then freely incised and squeezed so as to expel as much of the fluid as possible. The skin should be washed with chromic acid solution, and compresses wet with the same be applied. Internally alcohol and ammonia should be administered. The alcohol, however, should not be administered in great amounts, as it thus paralyzes and depresses the nervous system.

LICHTMANN recommends that in recent cases (*Deutsch. Med. Zeitung*, 1891) a deep crucial incision be made and the wound washed with a five per cent. solution of carbolic acid or potassium permanganate. A white-hot iron should be applied to the deeper parts of the wound, and a strong constricting band above the site of the bite. In the general treatment, stimulants, as alcohol, camphor, ether and ammonia may be given, the general nutrition maintained, and antiseptics fully used upon the wound.

DR. S. WEIR MITCHELL, OF PHILADELPHIA.

This gentleman has devoted years of study to the subject of snake bites, and in his valuable monograph on the subject, in which Prof. EDWARD REICHERT, of the University of Pennsylvania, was a collaborator, he has laid stress upon the fact that the most serious result of the poison is its disorganizing effect upon the blood. The degree of danger, it is thus clear, depends upon the amount of virus which gains entrance into the haemic circulation. The most successful treatment is based upon this fact, and must consist in measures to prevent the absorption of the substance, as by ligatures on the cardiac side of the circulation and in the destruction of the poison as quickly as possible. The most reliable remedy for this purpose, in the opinion of the above authorities, is permanganate of potassium; and in addition to injections of solutions of this substance, they urge the necessity of stimulants, external heat, and other general measures.

ARKHANGELSKY (*Prov. Med. Jour.*, 1890,) also recommends injections of potassium permanganate in 1 per cent. solution, all

about the site of the bite, directing the point of the hypodermic syringe toward the bite. At the same time he recommends that a syringe of ether be injected into the epigastric tissues, and alcoholic stimulants and ammonia be given by the mouth.

BIBRON'S ANTIDOTE.

105. R.	Brominii,	f. ℥ijss	
	Potassii iodidi,	gr. ij	
	Hydrargyri chloridi corrosivi,	gr. j	
	Alcoholis diluti,	f. ℥xxx.	M.

A teaspoonful in wine or brandy, repeated p. r. n. after the bite of a rattlesnake. This had at one time considerable fame, but has of late years fallen out of confidence. Various observers on the western plains have testified to its value.

NOTES ON REMEDIES.

Alcohol in some form ranks among the most important antidotes in the bites of venomous serpents. (P. 148.) It should be given freely until the patient shows decided symptoms of intoxication. Distilled spirits, whisky, gin or brandy is the best form. (Vide infra—*Strychnia*.)

Ammonia. Both as a local and internal remedy, the spirits of ammonia are constantly used in poisonous bites and stings. (See above, p. 149.) The celebrated *Eau de Luce*, named from the island of Santa Lucia, is the *spiritus ammoniæ succinatus*.

106. R.	Mastich,	f. ℥ijj	
	Alcoholis,	f. ℥j	
	Ol. lavand.,	gtt. xiv	
	Ol. succin.,	gtt. iv	
	Spiritus ammoniæ,	f. ℥xx.	M.

Macerate the mastich in the alcohol, pour off the clear tincture, and add the rest. The dose is from gtt. x to f. ℥j.

The *Spiritus Ammoniæ Aromaticus* should be given in f. ℥j doses frequently repeated; or the *Liquor Ammoniæ* in f. ℥ss, well diluted, every ten or fifteen minutes.

Antimonii et Potassii Tartras. The cobra bite has been successfully treated in India by ligation and scarification, followed by:

107. R.	Antimonii et potassii tartratis,	gr. ij	
	Aquæ,	f. ℥viii.	M.

A wineglassful every fifteen minutes till free vomiting is induced.

The convalescence is aided by quinine.

Arsenicum. In various forms, arsenic has enjoyed a high repute in serpent bites in India. It is given as Fowler's solution, or as the *Tanjore pill*:

108. R.	Acidi arseniosi,	gr. iv	
	Piperis nigri,	℥ij	
	Acaciæ,	q. s.	M.

Make sixty pills.

These are given up to the limit of tolerance.

Baptisia Tinctoria. The wild indigo plant is a popular remedy for rattlesnake bites among the mountains of the Middle Atlantic States. The leaves are applied as a poultice to the part.

Euphorbia Prostrata. This plant has been widely recommended as a cure for rattlesnake bites. It is however in no sense a sure cure, according to authorities. "It is macerated in cold water, the skin about the bite scarified and the pulpy mass applied and rubbed into the injured part. This is to be repeated a number of times at intervals of 15 or 20 minutes, and finally a poultice of the same plant should be bound on and left."

Ipecacuanha. The following is a favorite treatment for rattlesnake bite in Guiana :

109. R.	Pulveris ipecac.,	gr. xx-xxx	
	Pulveris capsici,	gr. v.	M.
Make one dose.			

Aid the vomiting and diaphoresis by abundance of warm water. After the emesis ceases, alcohol should be given to the extent of slight inebriation. Local means are not employed.

Parcira. In Brazil, the root of *Parcira brava* is used in the bites of poisonous serpents. A vinous infusion is taken internally, while the bruised leaves of the plant are applied to the wound.

Permanganate of Potassium is strongly commended as a means of neutralizing the poison of venomous serpents (vid. p. 150).

Sinaba Cedron. This plant, indigenous to Central America, has a considerable reputation as a specific antidote for venomous bites. The fruit, a sort of bean, is the part used. Sufficient has been said of it to justify further and more ample trials than have yet been made of its merits.

Sodii Bicarbonas, Carbonas et Hydras. These sodium compounds have attained in our western states great reputation, particularly the last. The part injured is laid open by a number of deep scarifications and held in a soda solution, or an alkalinized solution is applied constantly over the raw surface on cloths. The alkaline solutions are injected, too, all about the bite.

Strychnia has been recommended as an antidote to the tendency to respiratory paralysis. It is commended by T. LAUDER BRUNTON (*Brit. Med. Jour.*, 1891). This authority recommends at the same time that the stomach might be washed out with an alcoholic. This is not without danger, however. It is suggested because he believes the poison is partly excreted by the gastric mucous membrane, and the alcohol would cause its disorganization and prevent reabsorption. It is thus this authority believes alcohol, as popularly used, acts.

Tabacum is an antidote to many poisonous bites, and is popularly used in the South and West for this purpose. A poultice of tobacco is applied to the bitten part, and sufficient is swallowed to nauseate the patient. It is considered that the patient is safe, so long as he can be kept nauseated.

STINGS OF INSECTS.

A careful examination of the wound should be made with a pocket lens, and any remnant of the sting be removed with a pair of fine-pointed forceps. An application of some soothing or neutralizing fluid should then be made by dipping in it cotton-wool and applying to the part. Many substances are popular for local use. *Spirits of ammonia, laudanum, vinegar, tincture of camphor, eau de cologne, lime water, ether*, have been employed. If there is prostration, stimulants should be exhibited. When the mouth or throat is the part stung, there is danger of spasms of the rima glottidis. Warm flannels should be applied to the neck, and inhalations of warm ether employed.

The *oil of lobelia* is said to give prompt relief. A solution of *acetate of lead* is effectual; also *dilute carbolic acid*, as:

110.	R.	Acidi carbolici,	f. 3j	
		Olei olivæ,	f. 3j.	M.

Dr. W. A. TERRY (*Dietetic Gazette*, 1891) recommends that fresh *urine* be applied to the stings of poisonous insects. It should be applied as quickly after the sting as possible for its best effects. He believes that *urea* is the efficient agent.

ARKHANGELSKY recommends that in the stings of scorpions and of venomous insects, *permanganate of potash* be injected in solution of one per cent. strength into the seat of the wound.

In the South and West where the stings of tarantulas and centipedes are met, a deep injection of an alkaline solution, as of soda or ammonia, is esteemed most highly. It causes the pain to cease quickly and surely, and the swelling to begin to disappear almost immediately. Where there is prostration stimulants are, of course, to be used.

In the stings of the less venomous, the application of the mud made from the alkaline earths of the West is said to produce rapid amelioration, and even ordinary mud of a clay soil is undoubtedly soothing.

POISONED WOUNDS.

In the older text-books upon surgery the class of injuries included under this heading was an extremely important one, being made up of wounds in which occurred infection from the cadaver, as in dissecting wounds, or from the living diseased body, as during operations (as syphilis, anthrax, erysipelas, etc.), as well as of those poisoned wounds caused by the stings and bites of insects, fishes, reptiles and animals. In the present work these have for the most part been distributed to various special sections, and there remain to be considered here only a few such wounds as result from such causes as wounds from poisoned arrows, the stings from fishes, as the "sting-ray," catfish, etc., cutting by such objects as oyster shells, etc., together with the general consideration of the entire subject.

In poisoned wounds in general the dangers are either to the general system or to the locality of the injury, or both. In the first case the poison which enters, in order to act as a general toxic agent, must be generalized, having been absorbed by the nervous system, by the lymphatic or by the hæmic circulation. Such poisons are to be treated first by efforts to prevent their absorption, by ligatures on the cardiac side of the wound to prevent the return of the blood temporarily, followed by the application of some means of destroying the poison, either by cautery or by some chemical means. Or the part poisoned may be immediately removed by the knife, with the hope of also removing the poison. Once the poison has gained entrance into the general system, the main effort of the surgeon is to aid elimination by the kidneys, alimentary mucous membrane or otherwise, by every means in his power, and at the same time to sustain the general condition of the patient as much as is in his power. To the former end diuretic measures, the use of calomel and other purgatives, particularly the salines, are to be commended, where no contraindication exists; so, too, emetics, particularly the diluent and milder ones may be used. As supportives, all the respiratory and cardiac stimulants may be necessary, alcohol and ammonia being usually required in any case. The diet must be highly nutrititious and easily disposed of, as milk, etc.

In poisoned wounds from poisoned arrows, a form of wound rarely if ever met in this country, the first effort should be to obstruct the venous flow of blood, together with an application of the

mouth to the wound to suck out the poison. If possible at once, thorough cauterization may be practiced or the excision of the wounded tissues; but this only if the measure be accomplished in the very outset. The poison usually used for the purpose of rendering weapons poisonous is curare, which is obtained by the savages pursuing these practices from varieties of *strychnos* plants. The poison kills by producing respiratory paralysis, paralysis of the respiratory centres; and every effort at stimulation of these centres should be made, by the administration of strychnia (obtained from a different form of the same class of plants), moderate amounts of alcohol, etc. The entire treatment beyond that of the wound itself should be stimulative and supportive in its nature. For the wound, it is good practice to lay it open in its entire length, and apply poultices charged with antiseptic matter in order to cleanse, and then dress with strict adherence to antiseptic principles.

In the wounds from stings of fish, cuts from shells, etc., the same local measures should suffice, possibly abetted by the administration of small amounts of alcoholic stimulus. The wound should, if not already open, be laid open by the knife, and cleansing poultices applied, followed later on by antiseptic applications and dressings. This is especially to be commended where the wound has existed any time and the poison has rendered the surrounding tissues inflamed. Where the wound is quite recent, the application of the cautery may destroy the poison and cause the ready healing of the wound.

V. THE NON-INFECTIOUS COMPLICATIONS OF WOUNDS.

Hemorrhage—Pain—Shock—Traumatic Spasm and Paralysis.

HEMORRHAGE.

The therapeutical means for the control of surgical hemorrhage, exclusive of operative measures, include (1) arterial sedatives, (2) astringents, and (3) styptics.

The arterial sedative of first importance is *repose* of the part and of the system. The bleeding part should be elevated, and motion avoided. Arterial action may also be much diminished by position and forced flexion, as previously directed in the treatment of inflammation. (See page 164.)

A full dose of *opium* after serious loss of blood will greatly aid in maintaining a tranquil circulation, and prevent the recurrence of hemorrhage. Dr. GROSS states that "it is surprising that this remedy is not more generally employed than it seems to be." *Chloral* has been recommended with the same end in view.

Of nearly equal value, especially when considerable arterial excitement is present, is *veratrum viride*. One of the surgeons in the late war writes: "An extended experience with *veratrum* during eighteen years assures me of its great value in abating and even warding off *inflammation, and in controlling hemorrhage*. Hemoptysis, hæmaturia, metrorrhagia, gastric hemorrhage, all yield with a facility which it has not been my fortune to experience with my other medical agents whatsoever. During the late war, I was in the habit of thus controlling the pulse for the purpose of preventing secondary hemorrhage. In one such case, the exhibition of *veratrum*, during ten days, at my suggestion, rendered an amputation below the knee unnecessary, which was barely escaped by the patient, and had been decided upon by the attendant surgeon."

The internal use of *astringents* is called for in cases of passive hemorrhage, when without arterial excitement there is strong tendency to oozing of blood, consequent on the hemorrhagic diathesis, on relaxation of the vaso-motor system, or else on some disease of

the circulatory vessels. Of these the most efficient are *ergot* and *acetate of lead*. They should be given in large doses, frequently repeated. The *urtica urens* has long enjoyed a reputation as controlling passive hemorrhage. Dr. J. E. GARRETSON, of Philadelphia, recommends the tincture of *Erigeron Canadense* in single-drop doses each minute. He has found it very useful in epistaxis, internal hemorrhage, etc. The juice of the nettle, a permanent syrup of which has been prepared in France by PANEAU, is recommended in this connection.

The rule in the use of *styptics* is, that where we can arrest the hemorrhage by compression, position or ligation, they should not be employed. (BILLROTH.) In parenchymatous bleeding from the face, neck or perineum, we may resort to styptics with advantage, if it makes no difference whether the wound suppurates subsequently; but if the hemorrhage be considerable, and the styptics fail, subsequent ligation is much more difficult, as the wound is often so much smeared by the previous applications.

As *contra-indications* to the local use of styptics, Dr. WARING enumerates the following: Inflammation; active hemorrhage; inflammatory diarrhœa; an excessive mucous discharge, attended by inflammation; rigidity of parts; extensive external injuries. In these cases, the local application of astringents will not only fail to arrest the hemorrhage, but may excite excessive irritability or inflammation of the surrounding tissues.

CONSECUTIVE AND SECONDARY HEMORRHAGE.

Where the wound after operation continues to bleed after the closure, it may cause considerable annoyance and trouble by pressure and tension on the sutured edges of the wound. In such case, or where it occurs rapidly and is suggestive of the opening of a vessel of any size, it is best to reopen the wound and ligate the vessel, if it may be found. Often simply opening to the air will cause the bleeding, especially if it be of an oozing character, to stop; it may then be well to keep the wound open several hours that the surfaces may glaze over, taking care to antisepticize carefully from time to time.

In secondary hemorrhage it is often sufficient to raise the part in order to stop the bleeding, which is apt to take place from the side of the ligated vessel away from the heart; but in cases in which such an occurrence is impossible from the nature of the wound, it is

necessary to open the wound, find the bleeding vessel and tie it, usually some distance above the original ligature.

DR. B. W. RICHARDSON, OF LONDON.

In the *Medical Times and Gazette*, 1867, this physician suggested a hæmostatic preparation, which under the name of "RICHARDSON'S *styptic colloid*," has achieved considerable popularity. The directions he gave for preparing it are as follows:

The object to be arrived at is to saturate ether entirely with tannin and colloid substance, xyloidine or gun-cotton. In the first step of the process, the tannin, rendered as pure as can be, is treated with stronger alcohol, and is made to digest in the alcohol for several days. Then stronger ether is added, until the whole of the thick alcoholic mixture is rendered quite fluid. Next, the gun-cotton is put in until it ceases readily to dissolve. The solution is then ready for use. It can be applied directly with a brush, or mixed with an equal quantity of ether; or in the form of a spray. This styptic is deodorant, excludes the air from every point of the wound, thus preventing oxydation and irritation, checks the oozing of blood, holds the parts in apposition, and soothes the pain of the wound.

CARBOLIZED STYPTIC COLLODION.

111. R.	Collodion,	100 parts.
	Carbolic acid,	10 "
	Tannin,	5 "
	Benzoic acid (from gum),	5 "

Mix the ingredients in the order above given, and agitate until perfect solution is effected.

This preparation has a brown color, and leaves on evaporation a strongly adherent pellicle. It promptly coagulates blood, leaving a consistent clot, and favors the cicatrization of the wound. (Dr. CARLO PANESI.)

FERRATED STYPTIC COLLODION.

112. R.	Collodion,	6 parts.
	Crystallized perchloride of iron,	1 part.

Mix very gradually, so as not to generate much heat. Apply locally.

This composition has a yellowish color, and is perfectly limpid. It leaves on the skin a yellow, elastic pellicle, and is a useful hæmostatic. (*Journal de Medecine d'Anvers*, 1867.)

STYPTIC COTTON.

The following method for the preparation of this substance is that preferred at the Pennsylvania Hospital, Philadelphia: Take a roll of fine jeweler's cotton, and thoroughly saturate it in a mixture of Monsel's solution of the persulphate of iron, diluted with two parts of water; let it stand in the mixture for forty-eight hours; press the liquid out, and dry in a warm room, then pick or card out in fine shreds. It is better to make in small quantities, as there seems to be some change in the cotton when kept for any length of time, it losing its texture and breaking up in a fine powder when handled, thus rendering it unfit for application.

STYPTIC LINT.

This may be prepared by steeping lint in the tincture of the perchloride of iron. Another very useful form, especially when it is desired to produce a superficial slough, as well as to stop bleeding, is *blue lint*. This is prepared by steeping the lint in a saturated solution of the sulphate of copper, and drying carefully. It should be kept in stopped bottles, ready for use. (T. HOLMES.)

STYPTIC WOOL.

Boil the finest carded wool for half an hour in a solution containing four per cent. of soda; then wash in cool, soft water, wring and dry it. Dip several times in fluid chloride of iron diluted with one-third of water, squeeze and dry in a cool draught of air. Card, and keep dry in caoutchouc bags or glass-stoppered bottles. (Dr. EHRLE, of Isny, in *The Lancet*, 1871.)

113. R.	Plumbi acetatis,	gr. xv	
	Digitalis pulveris,	gr. viij	
	Opii pulveris,	gr. iij	
	Confectionis rosæ,	gr. xv.	M.

Divide into twenty pills. Three or four a day, to check hemorrhages, of various origin.

DR. OROSI, OF ITALY.

114. R.	Acidi tannici,	℥ij	
	Sacchari,	3ss	
	Spiritus lavandulæ,	gtt. v	
	Adipis,	℥iss.	M.

This styptic ointment is to be spread on charpie, which is to be left in contact with wounds, the seat of passive hemorrhages.

PROF. PANCOAST, PHILADELPHIA.

115. R. Potassii carbonatis, 3ij
 Saponis venet., 3i
 Spiritus vini rectifi., f. 3 iij. M.
 Apply locally. A very good styptic, especially in the milder forms of hemorrhages.

PROF. S. D. GROSS, PHILADELPHIA.

116. R. Iodinii, 3j
 Potassii iodidi, 3ij
 Alcoholis, l. 3 ij
 Aquæ destillatæ, f. 3 iv. M.
 Use as an injection in hemorrhage of the internal cavities, especially of the uterus from the presence of fibroid tumors, etc.

DR. MONSEL.

117. R. Acidi tannici, ʒi
 Aluminis, ʒij
 Aquæ rosæ, f. 3 iij. M.
 For external use as a hæmostatic.

PAGLIARI'S STYPTIC.

118. R. Tinct. benzoini, f. 3 viij
 Aluminis, lb. j
 Aquæ, lb. x.
 Mix and boil for six hours in a glazed earthen vessel, stirring constantly and supplying the loss with hot water. Strain and keep in stoppered bottles. It is said to cause an instantaneous coagulation of the blood.

MARTIN'S TANNIN SOLUTION.

119. R. Tannic acid (old), ʒj
 Distilled water, 3ij. M.
 After subsidence decant the supernatant fluid.

This is highly recommended by Mr. P. MIALL, in the *British Medical Journal*, November 7, 1874. He states that it is a most powerful astringent, almost free from irritating properties. It is one of the best dressings for wounds—far superior to collodion, and even less irritating than the styptic colloid, which it somewhat resembles. If applied by a brush and allowed to dry, it soon forms a pellicle which excludes the air, and gives ease to pain. It may be applied to almost any form of ulcer, and to wounds after amputations or other operations, especially when not very deep. It answers well, for instance, after the operation for hare-lip, painted over the pins and threads, in the same way as collodion is sometimes used.

NOTES ON REMEDIES.

Acida. Sulphuric, nitric and acetic acids, when diluted, effectually check bleeding from the smaller vessels and capillaries. *Vinegar*, which is

always at hand, may often be called into requisition in slight cuts, leech bites, etc. The stronger acids may also be used for their cauterant effect on oozing surfaces.

Aconitum, as a cardiac depressant, is occasionally valuable in hemorrhage.

Agaric is valuable in leech bites, cuts, oozing from the gums, etc.

Alcohol. When the heart is suddenly enfeebled by hemorrhage, alcoholic stimulants may be cautiously given, care being had not to bring about violent reaction. Opium is preferable.

Alnus Vicaria. The bark of the speckled alder contains a large amount of tannic acid, and has been employed with success as a hæmostatic by Dr. T. R. DUPINS. (*Canada Lancet*, October, 1871.) Cloths saturated in a strong decoction were applied to the bleeding surface.

Alumen is a valuable styptic. It is an ingredient of PAGLIARI'S styptic (F. 118) and others. It may be dusted on after wiping dry.

Ammonia. In the exhaustion from severe hemorrhage, some of the preparations of ammonia are exceedingly valuable heart stimulants.

Antifebrin and *Antipyrin*. These substances are claimed by MONCORVO (*Four. de Méd. de Paris*, 1890,) to possess undoubted hæmostatic power; and he reports cases where antipyrin was more effective than iron, ergotin, boric acid, and other drugs.

Argenti Nitras. Bleeding leech bites, etc., may be touched with a stick of caustic.

Atropina given hypodermically (gr. $\frac{1}{2}$ - $\frac{1}{4}$) has been found valuable in hæmoptysis and in internal hemorrhage.

Cibotium Cunninghamii. The light brown, soft filaments of this East Indian tree fern (known as Pengawhar Djambi) have been imported for use as a local hæmostatic. They are used like styptic cotton, and are reported very efficient.

Collodion, useful in the form of RICHARDSON'S "styptic collodion." (See above, p. 158.)

Creosotum. In hemorrhages of the nasal, pharyngeal and oral cavities, this is an excellent local application. In the case of dental hemorrhage, a small tampon, impregnated with a thick mixture of creosote in substance and alumen, is to be pressed into the bleeding alveolar cavity. If the hemorrhage does not stop at once, another similar compress should be superimposed, and the pressure increased with the finger. In obstinate nasal hemorrhages, plugging the nose with charpie tampons, impregnated with the same mixture, is uniformly successful.

Cupri Sulphas, used in the preparation of *blue lint* (p. 159), and in stick to leech bites, etc.

Digitalis has an undoubted power to arrest hemorrhage. It is appropriate in

internal hemorrhages, when large doses must be given, preferably of the infusion.

Ergota, internally or in hypodermic injection, contracts the arterioles, and is invaluable in the hemorrhagic diathesis.

Erigeron Canadense is highly esteemed by Dr. GARRETSON. (See above.)

Ferrum. The preparations of iron stand at the head of the list of styptics.

The solution of the persulphate (Monsel's salt) is perhaps the most popular. The tincture of the chloride or perchloride is much used. Mr. ERICHSEN considers it "the readiest and most efficient hæmodynamic." Others assert, however, that it is more apt to irritate the surface of wounds and prevent union by the first intention than the persulphate, which is quite free from causticity. (RINGER, GROSS.) The liquor ferri pernitratæ is preferred by some English surgeons.

The following is an efficient mixture in the hemorrhagic diathesis:

120. R.	Acidi gallici,	℥ss	
	Acidi sulphurici diluti,	℥℥j	
	Tinct. opii deodorati,	f. ℥i	
	Infusi rosæ comp.,	f. ℥iv.	M.

A tablespoonful every four hours or oftener. (BARTHOLOW.)

Galla. Gallic acid is a moderately energetic local styptic.

Hamamelis. In the hemorrhagic diathesis, and in persistent oozing of blood, one or two drops of the tincture of witch-hazel every two hours is often efficient.

Krameria is a powerful internal astringent.

Matico is not an astringent, but has a well-sustained reputation as a hæmodynamic, both for local use and as an internal remedy.

Myristica. Nutmeg, browned like coffee, powdered and applied to the bleeding surface, is a prompt styptic. A case of marked hemorrhagic diathesis, where it was used "with astonishing success," is reported by Dr. S. B. CHASE, of Iowa. (*Medical and Surgical Reporter*, Dec., 1874.)

Nux Vomica. Where the hemorrhagic tendency depends upon impoverished blood, a combination of nux vomica and iron is very serviceable.

Opium. In the exhaustion after profuse hemorrhage, no remedy is equal to a full dose of opium. (See above, p. 156).

Phenacetin is mentioned by MONCORVO as a valuable styptic.

Plantain. The leaves of the common plantain, bruised and macerated, are highly esteemed for their hæmostatic properties among the dosimetric practitioners, as are also the leaves of a Mexican weed, *Tradescantia erecta*.

Plumbum. Acetate of lead in solution is an astringent solution of minor importance. Internally, in doses of gr. v every hour or two, it is very efficient in visceral hemorrhage.

Tannicum Acidum is employed in a variety of styptic preparations. (See F. 111, 114, 117, 119.)

Terebinthine Oleum. In the hemorrhagic diathesis and internal hemorrhage, f.ʒss of turpentine every two hours often proves efficient. It is supposed to act as a vaso-motor stimulant. Applied externally, it is strongly recommended by Prof. BILLROTH. Some wads of charpie are soaked in it and introduced into the wound. It is, however, an heroic remedy, not only because its application induces severe pain, but also because it excites severe inflammation in the wound and its vicinity.

Thallin is said by MONCORVO to possess very marked styptic properties, applied directly to the wound. It is quite as effective as antipyrin, according to this writer.

Veratrum Viride, as a cardiac depressant, is well spoken of in active hemorrhage. (Above, p. 156.)

GENERAL MEASURES.

Cauterization. When styptics fail, resort must be had to cauterants. Of these the nitrate of silver, nitric acid and carbolic acid are most in use. The actual cautery may also be employed. It should be at a black or dull-red heat, and lightly applied. Dr. THOMAS C. STELLWAGEN, of Philadelphia, has recommended pointed sticks of hard or compressed *wood* as cauteries. These sticks may be made more inflammable by soaking in something like a solution of saltpetre, before drying and passing through the process of condensation, which dentists accomplish by an ordinary draw-plate, such as is used for making wire. To use one, a suitable portion should be burned in the flame of an ordinary match for a few moments, and then, by blowing out the flame, the incandescent portion at the point may be brought to the shape desired, and the temperature raised by passing rapidly through the air, or *vice versa*, lowered by allowing a trifling coating of ash to accumulate upon the surface. This will burn thus for one or more minutes, according as more or less is charred by the flame, and one or more of the small sticks are used singly or tied together, or the stick made of larger diameter.

Cold. The exposure of the cut surface to the cold air is often sufficient. Lint soaked in ice-water, or a small stream of cold water allowed to drip on the wound, or, when it is to be had, coating the surface with clean *snow* or the spray of ether, are more positive means. If cold does not check the bleeding immediately, it is useless to continue it.

The following "freezing mixtures" are sometimes useful. They reduce the temperature from 50° to about 8°-10° Fah.

- | | | | | | |
|------|----|---------------------|---|----|-------------|
| 121. | R. | Ammonii chloridi, | • | | |
| | | Potassii nitratis, | | āā | ℥i |
| | | Aquæ, | | | f. ℥ ij. M. |
| 122. | R. | Ammonii nitratis, | | | |
| | | Sodii chloridi, | | āā | ℥j |
| | | Aquæ frigidæ (ice), | | | f. ℥ ijss. |

Ligation. This is of course the effective surgical method of stopping hemorrhage. The bleeding vessel having been exposed by dissection, a ligation of silk or catgut (sterilized) is thrown about it, drawn closely and tied.

Position. A valuable aid in checking hemorrhage in one of the extremities is by placing it in such a position that the flow of blood to the part is checked or suspended. The simplest position is that of *elevation*, the arm or the leg being raised above the level of the trunk. Still more efficient is *forced flexion*. The following experimental results, reported by Mr. GEORGE T. HEATH to the British Medical Association, indicate both the manner and relative effects of this method:

A. *Upper Extremity.* 1. Forearm bent on arm by muscular action of the individual experimented on. In persons with considerable muscular development, pulse at the wrist entirely stopped. 2. Forearm bent on arm simply, with the hand flat on the shoulder. Pulse weak and indistinct; sometimes, but rarely, quite stopped. 3. Forearm bent on the arm, with hand pronated. Pulse more weakened, sometimes stopped. 4. Forearm bent on arm, hand pronated and extended. Pulse usually quite stopped. 5. Forearm bent on arm, hand pronated and bent at wrist. Pulse either almost imperceptible or quite stopped. 6. Forearm bent on arm, with a roll of lint or cambric handkerchief rolled up and laid in bend of elbow. Pulse always entirely stopped.

B. *Lower Extremity.* 1. Leg flexed on thigh. Pulse in posterior tibial artery much weakened. 2. Leg flexed on thigh, and thigh on abdomen. Pulse in posterior tibial stopped altogether almost invariably. 3. Leg flexed on thigh, with a roll of lint or cambric pocket handkerchief laid in the bend of the knee. Pulse stopped in some cases, not always; but with flexion of thigh on abdomen also, pulse invariably stopped. 4. Thigh flexed on abdomen, the trunk bent forward. Pulse materially weakened.

From these experiments, as well as from those cases of actual bleeding in which this method has been used, it may be fairly inferred that we possess in over-flexion a blood-controlling agent of considerable power, which can be applied on the shortest notice.

Pressure is an effectual hæmostatic when it can be applied evenly over the whole wounded surface. Compresses and bandages are the means usually employed. When the hemorrhage is from cavities they may be plugged. The digital pressure applied by the fingers on the course of the artery above the wound, and instrumental pressure by tourniquets, the Esmarch bandage, etc., need not be considered here.

Revulsives, applied over the liver, as strong counter-irritants, heat, leeches, etc., have been found of great value even when other measures have successively failed. This is particularly the case in hemorrhage from the lungs.

Torsion. This method of arresting hemorrhage is valuable in arteries of small calibre, though it has also been successfully employed in the main vessels of the extremities. It is applied by several methods :

Free Torsion. In this method THIERRY recommends that the artery should be neither fixed nor drawn out, but simply grasped with a pair of broad forceps, and twisted without breaking off the end of the vessel ; ten rounds in the case of large, six in medium-sized, and four in small arteries, being usually sufficient. FRICKE says the artery should, without violence, be drawn out about two-thirds of an inch, but not fixed, lest the twist may extend to the attached part of the vessel. The artery, thus held, should be detached from the surrounding tissues by a second pair of forceps. Twisting is then to be continued until the end of the artery is torn off, eight or nine revolutions being generally necessary.

Limited Torsion. In this process AMUSSAT advises to draw out the artery five or six inches by means of a pair of forceps with a closing bolt. The vessel is then to be separated from its connections with a second pair of forceps, and held at its fixed point by the latter while the end is twisted off by the former.

Combined Method. The artery is first seized with a pair of broad-pointed lock-forceps (one blade being placed within, and the other without the vessel,) and gently held without tension ; with a second pair of forceps it is then separated from its connections, and fixed just below its point of attachment. The vessel is now twisted until it is felt to break, which generally occurs after the fourth, fifth, or sixth revolution.

All these methods recommend twisting the artery until it breaks. On the contrary, Mr. THOMAS BRYANT, of London, advises that the end be rotated only till the sense of resistance has ceased, and that it should not be twisted off. This surgeon has probably had the most favorable experience of any. He says : "After seven years' experience of the practice, applied to vessels of all sizes, the femoral being the largest, I have had no mishaps. * * * * I have had stumps

heal in a week, and patients up in two weeks, without one single drawback. At Guy's Hospital, up to 1874, we have had two hundred consecutive cases of amputation of the thigh, leg, arm and forearm, in which all the arteries had been twisted (one hundred and ten of them having been the femoral artery,) and no case of secondary hemorrhage."

Transfusion. As a last resort in hemorrhage, as a means of preserving life—not of stopping the hemorrhage—transfusion should be resorted to. The operation is easy and often successful. Experience has taught that it is not advisable to inject more than f.ʒiv–viij of blood, and that this is sufficient to recall life. (BILLROTH.)

Within the last several years the injection of saline solutions has been strongly advocated instead of transfusion of blood. HUNTER (*Brit. Med. Jour.*, 1889) advises a solution made up of

123. R.	Sodii chloridi,	ʒj	
	Aquæ,	Oj.	M.

This writer is strongly opposed to the transfusion of blood, defibrinated or not, as a dangerous procedure. To accomplish the infusion of the saline solution, the only instruments required are a small cannula, glass or metal, several feet of rubber tubing (all perfectly clean, of course), and a clean glass funnel, the fluid being allowed to enter the vein, after insertion of the cannula, by gravity. The vein should be opened by means of a bistoury; and the funnel and tube being filled with the saline solution, the rubber tube is pinched to prevent the escape of the fluid, and the cannula is inserted into the vein and the tube loosened. Care must be taken that the whole tube and cannula be filled with the solution to exclude air. Large sized hollow needles may be used instead of the cannula.

Subcutaneous injections of large size of this saline solution are also effective. Injection of the saline solution into the peritoneal cavity has also been suggested.

PAIN.

PROF. THOMAS BRYANT, OF LONDON.

The character of a wound is not always the criterion as to the amount of pain experienced by the patient; this is rather a peculiarity of the individual. Some may suffer excruciating pain from even slight injuries; whereas others may be seriously and variously

injured with but little degree of painful sensibility. Pain may possibly be so intense as to have a fatal result.

The first thing to take into consideration is the question of position of the injured part, and the wounded structures are to be placed in comfortable condition and then properly protected as measures of primary importance. In most wounds there is a certain amount of pain, which in the course of a few hours at most usually disappears. This authority, however, cautions that after an operation, if there be no contra-indication, a suppository of opium be introduced into the rectum before the patient comes from under the effect of the anæsthetic, so that the opium begins to exert its effect as the chloroform or ether wears away.

When the pain is persistent and continuous, especially after the wound is nearly or quite healed, it may be suspected that some nerve has been included in a ligature, or has been surrounded by the cicatrix, or been bound down by adhesions to the bone or fascia, and is being compressed, or has been wounded. This condition is known as traumatic neuralgia, from want of a better knowledge as to the real nature of the case. The cause should be sought for in some such condition as suggested; and, when discovered, removed. Where it is not discoverable, the stretching, dividing or resection of the nerve may be justifiable. As general remedies, narcotics may be administered, together with tonics, as iron, arsenic and quinine.

DR. S. WEIR MITCHELL, OF PHILADELPHIA.*

Punctured wounds of superficial branches of nerves rarely demand special treatment. Occasionally they are caused by the lancet in bleeding, and give rise to troublesome consequences. The older surgeons were accustomed to treat them by cautery at the point wounded; this was effected by placing a morsel of *potassa fusca* in the lips of the cut; while others made an incision above the wound, or isolated it by carrying the knife around it.

DR. J. MASON WARREN, OF BOSTON.†

Severe traumatic neuralgia is not an infrequent sequela both of gunshot wounds, amputations and other injuries. Frequently its severity and persistence are out of all proportion to the extent of the lesion itself; a slight wound, where the injury seems to have been

* *Injuries of Nerves and their Consequences.* Philadelphia, 1872.

† *Surgical Observations.* Boston, 1867.

to the tissues surrounding a nervous trunk, rather than the nerve itself, being followed by intense and protracted pain.

It is important to inquire into the alleged efficacy of *dividing the nerve* as a remedy in such cases. In answer to this, it may be stated that if the nerve is simply divided, sensation will probably return before the tissues implicated in the original injury have had time to recover their normal condition, and that, therefore, the operation will afford only very transient relief, and may have to be repeated several times. If, on the other hand, a portion of the nerve is excised, the restoration of the nervous function will be very much longer in taking place; but there will also be great danger that the repair will be incomplete, or that it will fail altogether, and thus entail permanent loss both of sensation and motion. The deliberate removal of a long section of the nerve can be but rarely indicated, and then only as a last resort, as the possible alternative of amputation.

The rational treatment of these affections should be based on the fact that their natural tendency is to recovery, if only we can keep the patient comfortable. This can only be effected by division of the nerve, or by the use, either local or general, of narcotics. Gratifying success, in some instances, has been obtained by the repeated hypodermic use of morphia. In case of severe neuralgic affection of the median nerve, Dr. WARREN injected half a grain of the sulphate of morphia, in solution, deep under the skin of the forearm twice a day for six months. At the expiration of that time, he laid bare and dissected out the nerve, but did not divide it. The edges of the wound were loosely approximated, and water-dressings applied. The pain disappeared, and, under the use of continued injections, the patient recovered.

In a number of cases, Dr. WARREN succeeded without resorting to any operation whatever. His plan was to keep the whole limb in a state of perfect rest, by suitable appliances; to maintain its capillary circulation stimulated by wearing a sleeve of oiled silk, closed at the end, so as entirely to exclude the external air; by an invigorating course for the general health; and by the internal use of iodide of potassium. Warmth and moisture constantly maintained, locally passive motion, with otherwise entire rest of the part, proved most effective in his hands.

No doubt in many cases of traumatic neuralgia, the pain is kept up by infiltrations and indurations in and around the neurilemma;

and in case that the suffering does not yield to the usual external and internal remedies, the operation of cutting down upon the nerve is demanded. Several successful cases have formerly been reported by Dr. H. C. WYMAN, of Michigan. (*Peninsular Journal of Medicine*, October, 1874.) He dissects down to the nerve, splits open the neurilemma with a sharp bistoury, closes the wound with sutures, and lets it heal by the open process. He claims that the successful issue of his cases demonstrates the feasibility of operative procedures in a class of patients who have hitherto received no benefit from the treatment laid down by medical writers.

Mr. PEARSON has reported cases of extreme pain from lancet wounds, in which, after every means had been exhausted, the most remarkable case was afforded by the use of the following liniment:

124. R.	Olei olivæ,	f. ℥ ijss	
	Olei terebinthinæ,	f. ℥ iss	
	Acidi sulphurici fort.,	f. ℥ j.	M.
For a liniment.			

This was employed repeatedly, so as to cause the most intense inflammation of the skin of the whole arm. Where it failed to irritate sufficiently, he added a larger amount of the acid.

For traumatic neuralgia, *counter-irritation* is but rarely of value, though the formula given above has occasionally given relief. Veratria and chloroform are of no service. *Aconite* is occasionally useful, but must be employed with extreme caution. Acupuncture is of no avail. Hypodermic injections of narcotics are sometimes demanded by the severity of the suffering. They may prove more or less curative in their action, and, at any rate, give the relief needed to try other and more permanent methods of medication.

Morphina is the only narcotic which can be depended on, and its hypodermic use is superior to any other; gr. $\frac{1}{4}$ is the usual dose to begin with. When its sleep-compelling power is too prominent, we may combine it with atropia.

125. R.	Morphinæ sulphatis,	gr. $\frac{1}{4}$
	Atropinæ sulphatis,	gr. $\frac{1}{12}$
For one injection.		

In this combination the anæsthetic force of the morphia remains unaltered, but the tendency to sleep is greatly diminished.

Electricity and *massage* may both be employed, with some prospects of success, to give relief to the neuralgia.

The form of pain known as *causalgia*, or "burning pain," is best relieved by water dressings constantly applied. It will get well in time.

In extreme cases of traumatic neuralgia, the general result of experience is favorable to resection of the nerve. It should be done rather early than late in the case, and the resection should include a portion of the healthy nerve, but should, of course, be done at the lowest point possible. Measures should be taken to prevent or delay the union of the nerve as much as possible. With these precautions, the operation will often prove successful.

PROF. THEODOR BILLROTH.

This distinguished surgeon, in treating the pain and stiffness following old injuries, especially of the joints and the parts adjacent, has great faith in *massage*. Looking upon the pain as excited by infiltrations around the nerve-sheaths, he teaches that the resorption of such infiltrations can only take place by permeable lymphatics, assisted by an energetic circulation in the blood-vessels, especially the small veins; and fluxion excited in the parts by the systematic employment of massage, and active and passive movements, favors the resorption of the infiltrations that have been thus dispersed. Those cases must be exempted from this mode of treatment in which the pathological process has led to softening of tissues. In these, as a general rule, the walls of the vessels are also softened, and massage might give rise to extravasation, inflammation and the formation of abscess. The procedure, therefore, requires to be employed with great prudence in white swelling; but in pains and stiffness following old injuries, and chronic rheumatic inflammation of joints, we are able to act more boldly, and surprising results may be obtained by perseverance. The least trust is to be placed in this kneading treatment in those articular neuroses in which there is absolutely no objective abnormality to be found, neither swelling nor infiltration being present.

SHOCK.

PROF. F. X. DERCUM, OF PHILADELPHIA.

This author (*Med. News*, 1889,) regards surgical shock as due to a more or less marked general paralysis of the nervous system.

A surgeon about to undertake a serious operation should urge upon the patient a rest in bed of some days' duration, in order to lower the general nervous irritability. In administering the anæsthetic it should be done gently and cautiously, and in the least amount practicable. As soon as anæsthetization, preferably by ether, be complete, strychnia should be given hypodermically (gr. $\frac{1}{20}$ —gr. $\frac{1}{10}$). As soon as the operation is over, the patient should be placed on a hot water bed (in which the water may be from 100° F. to 125° F.), with the head slightly lower than the body—or at least not higher. If the shock continue any time and reaction does not occur, digitalis should be given hypodermically, with atropine; and at the same time musk may be administered in a mucilaginous enema in a dose of 15 to 20 grains. Strong coffee may be substituted for the latter if it cannot be procured readily.

KOTTMANN (*Amer. Jour. Med. Sci.*, 1892,) recently recommends that a salt solution be thrown into the veins, and details cases in which as much as 24 ounces were thrown into the venous circulation with benefit. By this means the vaso-motor palsy and the consequent dilatation of the vessels are in some degree overcome. The author recommends it particularly in shock in case of operations in pyæmic conditions, the fluid aiding in the excretion of the pyæmic poison.

T. LAUDER BRUNTON, M. D., OF LONDON.

This author observes that in shock we have two conditions to remove: the first, feebleness of the heart, due to the action of the vagus; second, the dilation of the great vessels, especially the veins in the abdominal and thoracic cavities.

To counteract the cardiac debility, we apply stimulants, especially that powerful heart stimulant, *heat*. A hot poultice or a bottle of hot water should be placed over the heart. Towels wrung out with hot water should be bound round the head. The patient should be in a warm atmosphere or placed in a warm bath, or his feet in a hot foot-bath, and brandy and ether given internally.

To cause contraction of the blood vessels, acetic acid and ammonia should be placed to the nose, precautions being taken that the air-passages be not irritated too violently. Painful impressions may also be called to our aid. Mustard plasters to the extremities, pinching the fingers, twitching the calves and soles, give a stimulus to the vaso-motor nerves.

A valuable remedy in shock is *digitalis*; half-drachm doses of the tincture may be given every hour. It has been used successfully by various practitioners. (*The Practitioner*, October, 1873.)

Heat has also been used in the form of the *hot-air bath* or the inhalation of *hot steam*, by Dr. E. D. MAPOTHER, of Dublin. (*Medical Press and Circular*, 1880.) He also gives enemata of water at 120° Fah., and frictions with rubefacients. Dr. HUNTER, of Philadelphia, used, with excellent results, the *hot-water bath*, beginning with 98° and rapidly raised to 110°. The patient is left in the bath from ten to fifteen minutes. (*Medical Record*, January, 1879.) Dr. MAPOTHER, however, considers the hot-air much more effective than the hot-water bath.

PROF. S. D. GROSS, OF PHILADELPHIA.

The treatment of shock is naturally divided into two parts—the promotion of reaction, and the moderation of subsequent excessive action.

The patient should be placed recumbently, constriction removed from his person, free access of cold air provided, cold water dashed in his face, and mustard plasters applied to the præcordial regions and extremities. If the case is severe, the spine may be rubbed with turpentine and a stimulating enema given. As soon as he can swallow, brandy and water, in teaspoonful doses, may be administered. Should the accident have occurred after a full meal, an emetic of alum, ipecacuanha, sulphate of zinc, or what, perhaps, is still better under such circumstances, equal parts of common salt and mustard, should be given. Even in shock from lesions of the brain this course is proper, when the stomach is oppressed by a heavy meal.

To moderate the resulting inflammation, the reaction should be held in abeyance by sponging the surface frequently with cool or tepid water, by administering a little morphia and antimony, by low diet and perfect tranquillity of mind and body. The diet for the first few days should consist mainly of animal broths, with, perhaps,

milk punch or wine-whey, cautiously followed by food of a more substantial character. Starvation is not to be thought of, and bleeding should very rarely be resorted to. Anodynes may be given early and freely, especially the ammoniated tincture of opium with valerian.

PROF. CHEEVER, OF BOSTON.

This authority (*Boston Med. and Surg. Jour.*, 1888; *Amer. Jour. of Med. Sci.*, 1889) recommends that in order to prevent the mental shock in operation, cheerful and encouraging words and demeanor should be expressed and maintained before the patient. Anæsthesia should be as short as possible; should be carried out flawlessly, begun when everything is ready—not before—and discontinued early. The operation and dressing should occupy as little time as possible, and care constantly taken that the patient does not get chilled.

After the operation, persistent application of dry heat should be employed, care being taken not to burn the patient. The nourishment should be liquid, well-seasoned at first, and hot—should be stimulant, in other words; and a small amount of alcohol with laudanum may be given by enema soon after the operation, before anæsthetization has been recovered from entirely. “Aromatic spirits of ammonia, black coffee, and brandy by the mouth, quiet and a horizontal position, or one in which the head is depressed, and sleep, are serviceable.” The food should possess stimulating properties, especially heat, to be of much service at such a time; otherwise it may not be absorbed, and may actually prove injurious. The application of heat is important and should be general, and the employment of a hot bath (110° F.) or a water-bed whose temperature is 130° F. to 140° F. is recommended. In the choice of an anæsthetic, ether is to be preferred, having some tendency to stimulate the circulation; moreover, it is a better stimulant under the circumstances than alcohol, as it acts more quickly and can be controlled and stopped more easily. *Atropina* is a drug by which the vaso-motor system may be stimulated, rendering the relation between the heart's action and the vascular resistance more natural. It is valuable because of the small doses of its salts necessary, and their diffusibility when administered hypodermically. *Ergot* is valuable, but it is too slow when given by the mouth and too irritant for hypodermic injection. *Digitalis* is strongly indicated both as a cardiac stimulant and a stimulant to the vaso-motor system; it is, however,

slow in its action compared to atropine, even when it is given hypodermatically, and then, too, it is apt to cause irritation when thus administered. *Ammonia* is sometimes of service given by the mouth; by hypodermic employment its effects would be too evanescent. *Strophanthus* might be employed instead of *digitalis*, being more prompt than the latter.

MR. T. HOLMES.

This writer lays particular stress on the condition of "prostration with excitement" which is apt to follow severe shock. It is marked by a rapid and weak pulse, the temperature not rising in proportion to the pulse, the stomach irritable and rejecting all or most that is put into it, the patient sleepless, restless, and more or less delirious.

This condition must be combated by *morphina* injected subcutaneously, or by chloral or opium in full doses, if the stomach will bear it. *Hyoscyamus* combined with opium often acts well. The warmth of the body and extremities must be sedulously maintained, and the irritability of the stomach lessened, by the application of mustard poultices, by constantly sucking small morsels of ice, by the administration of dilute *hydrocyanic acid* $\mathfrak{m}\text{ij}$ – iv in a small quantity of some vehicle, or *creosote* $\mathfrak{m}\text{ij}$ in pill every three hours. At the same time food must be supplied in the most grateful and most nourishing form, in small quantities very often repeated, and a stimulant (which ought not to be more than is absolutely necessary) in varied kinds, according to the patient's tastes and habits, and with similar precautions as to quantity and repetition.

MR. JONATHAN HUTCHINSON, F. R. C. S., LONDON.

In that common form of shock from injuries to the head known as *concussion of the brain*, this able surgeon holds that the symptoms are due solely to arterial paralysis, and that there is no tendency to any process allied to inflammation. All there is to do, therefore, is to restore the tone to the vaso-motor nerves, and prevent cerebral softening.

During the first stage, that of collapse, the patient should be let alone, and allowed to rally. If the collapse is extreme, or unusually prolonged, a diffusible stimulant may be given by enema. Generally it is sufficient to place the patient in a recumbent position, with the head low, and apply warmth to the extremities.

The remedies from which we may select are chiefly—first, those which diminish the temperature of the head; second, those which

diminish the quantity of the blood; third, those which place the heart at a disadvantage as regards sending blood into the head; fourth, those which, by causing great vascular turgescence at some other part, and also irritation of nerves, tend to diminish the vascular turgescence and nerve-irritation at the affected one; fifth, those which in a direct manner induce contraction of the arterial walls.

First. In order to diminish the temperature of the head, and thus induce contraction of the blood-vessels of the brain, the simple measure of shaving the scalp is of great importance, and, if the weather be cool, will often be quite sufficient to prevent the scalp from ever attaining an undue temperature. In warm weather, however, and whenever the heat of the scalp is well marked, either ice-bladders or evaporating lotions ought to be used.

Secondly. The chief measure by which we diminish the quantities of the circulating fluid is by direct abstraction of it by venesection. Purgation and blistering are other less direct methods of attaining the same end. As regards the influence of venesection upon the passive congestion of the brain, there can be no doubt that it is often very beneficial. If, however, the brain substance have been contused, there is a risk that softening may follow, and this risk will probably be increased by any measure which diminishes the patient's strength.

Thirdly. The semi-erect position, where not disagreeable to the patient, should be preferred.

Fourthly. As to the good effects of counter-irritation, there can be no doubt whatever. He has been accustomed to employ it more freely than is generally done—applying repeated *blisters* (and very large ones) to the nape of the neck, shoulders and upper parts of the arms, and often with very marked advantage. Blisters may be used at any time after reaction is established, and may often be continued throughout the whole of the case, until the patient is quite free from head symptoms. Patients who have recovered consciousness, but are still suffering from headache and confusion of thought, often speak in the most emphatic manner of the relief which they experience from the influence of a large blister.

Purgation is, perhaps, of all remedies, the one most universally and conspicuously beneficial in the treatment of the effects of concussion. Constipation is a tolerably constant condition during the state of general nervous torpor induced by concussion. Several doses of some brisk purgative are often necessary before the bowels

can be got to act, but when they do so, a change for the better in the patient's symptoms is almost always remarked.

In addition to the measures of active treatment which we have adverted to, there are certain other negative rules of scarcely less importance. Concussion patients ought to be kept perfectly quiet and free from all excitement. Their diet should be mild and unstimulating. All forms of alcoholic beverages ought to be most carefully excluded.

DR. HOOD, OF LONDON.

Railway Shock.—This writer (*Lancet*, March, 1875) urges the importance of *blood-letting* after a railway accident, in order to reduce the amount of fluid movement by the weakened heart. He considers there is not the smallest risk or danger in employing it, if the patient is bled in an *upright* posture, and the operation is performed, not immediately after the accident, but when sufficient reaction has been established, either spontaneously or by the administration of stimulants.

He adds that it is believed by many that *vinegar* is the best means of restoring consciousness after an accident due to concussion, and that it is a substitute both for alcoholic stimulants and for bleeding. It may be given in small quantities to the extent of a wineglassful.

All modern surgeons unite in condemning blood-letting in the early treatment of shock. But after the immediate effects have passed away, and it becomes necessary to guard against the violence of the reaction, opinions differ widely as to this measure. Mr. ERICHSEN considers that then blood-letting is of essential service, and is "far too much neglected at the present day." Dr. GROSS warns strongly against venesection, except in young and plethoric subjects, with a tendency to serious inflammation of some important internal organ. The opposite course, he teaches, often exerts a most pernicious influence on the patient's recovery. Mr. HOLMES, Mr. SAVORY and Mr. TRAVERS all lean decidedly against the abstraction of blood in any except unusual cases, as leading to that condition of "prostration with excitement" which is fraught with so much danger. Dr. B. W. RICHARDSON, of London, on the other hand, advocates its frequent employment. He claims to have witnessed prompt and excellent effects from it, without any of the dangerous sequelæ spoken of by other observers. His opinion, how-

ever, is not of sufficient weight to overbalance that of the surgeons above quoted.

DR. J. MILNER FOTHERGILL

has found the following combination very frequently useful in cases of acute shock :

126. R. Ammonii carbonatis, Spiritus chloroformi, Aquam,	gr. v f. ʒss ad f. ʒj.
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For one dose. To be repeated as required.

A teaspoonful of sal volatile in water is a pleasant and efficient stimulant. When the shock is but partial, as is witnessed in the passage of gall stones or calculi, stimulants are not desirable. A full dose of opium is then sometimes of service.

An efficient resource in collapse from shock is the hypodermic injection of *ether*, ʒj-ʒiv. The points of election are the abdominal walls and the thigh. The nozzle of the syringe should be introduced deeply, so as to avoid the formation of abscesses. Originally suggested by Dr. HECKER, in the collapse following excessive uterine hemorrhage, it may profitably be employed in any similar case. The effect on the pulse is prompt and easily recognized. Dr. ORTILLE, of Lille, speaking of his success with this measure, strongly recommends friction over the spot of injection, to promote absorption, and he calls attention to the contracted pupil as the sign of an anæmic brain, requiring the use of a rapid and diffusible stimulant, such as ether. Ether may also be given by enema.

Galvanism, especially over the præcardial region, is a most efficacious measure.

NOTES ON REMEDIES.

Acetum. Strong vinegar applied externally, inhaled, and taken internally in teaspoonful doses, properly diluted and oft repeated, is a very efficient restorative, nearly always at hand, and followed by no objectionable reaction.

Alcohol. The routine practice of giving brandy and water, or whiskey and water, in shock, is of doubtful propriety. Very frequently it is followed by dangerous reaction, disturbance and nervous irritation.

Ammonii Carbonas and the *liquor ammonie aromaticus* are valuable aids in restoring consciousness and strength.

Beladonna and *Atropia*, hypodermically, have been used with advantage in severe shock. They bring the heat to the surface and quicken the breathing.

Caffea. Small doses of strong, hot coffee are excellent stimulants in shock.

Digitalis is highly spoken of by Dr. T. L. BRUNTON. (p. 172.)

Ether may be given by the mouth, thrown into the rectum, or administered hypodermically. In either way it is a powerful restorative.

Hyoscyamus, combined with opium, is praised by Mr. HOLMES. (p. 174.)

Opium, in a full dose, or a subcutaneous injection of morphia, is, according to Dr. FULLER the best treatment in shock.

Strophanthus, as a substitute for digitalis, has the advantage of more prompt action, although it is said to be of less certain value as a cardiac and vaso-motor stimulant. It should be given in hypodermic doses of 3 to 5 drops of the tincture.

Terebinthina. Frictions and stupes of turpentine, and small doses of it *internally*, have been praised by Dr. E. D. MAPOTHER. The diffusible and diuretic action of the drug render it one of the most suitable in shock.

TRAUMATIC SPASM AND PARALYSIS.

FREDERICK JAMES GANT, F. R. S. C., LONDON.*

This surgeon directs attention to the fact that in some instances an hysterical constitutional condition causes neuralgic and spasmodic twitchings of the stump, especially, but by no means exclusively, in females. In such cases, no operative interference will be of the slightest use. The constitutional treatment is alone of promise. This is often advantageously prefaced by a change of residence. Depressing circumstances must be removed. The quinine treatment continued for a long time, with moderate doses, sometimes proves curative. If a malarial poison is suspected to be present, preparations of iron, the sulphates in particular, are more effectual. The urine should be tested for albumen, which, if present, will counteract the restorative effects of the iron. When traumatic neuralgia occurs in females, the menstrual functions should be inquired into, and measures be taken to promote their regularity, if they are disordered.

BRYANT states that carefully applied pressure, as from bandages or splints, and a proper care as to position of the wounded part, rarely fails to quiet the muscular twitching or spasms met after operations. The employment of general narcotics is also indicated.

* *Science and Practice of Surgery*, 1878.

DR. W. H. WATKINS, OF NEW ORLEANS.

Loss of the power of motion in the wounded limb, to a greater or less extent—in other words, *traumatic paralysis*—is not rare after gunshot wounds; and the treatment is usually quite unsatisfactory. Dr. WATKINS, however, reports a case of paralysis of the deltoid, both of sensation and motion, in which the local application of *strychnia* brought great amendment. (*New Orleans Journal of Medicine*, January, 1868.) The formula used was as follows:

127. R.	Strychniæ sulphatis,	gr. ij	
	Chloroformi,	f. ʒj.	M.
For a liniment. Apply night and morning.			

This solution was thoroughly rubbed into the skin of the affected muscles twice daily, about one-half of it being used at a time. After continuing these frictions for twelve days, the patient complained of an uneasy sensation in the arm, and on pricking the skin with a pin, it was found that some pain was experienced. Passive motion was then ordered, and the application continued. The power of motion gradually returned, and at the end of the fourth week he was discharged, using his arm nearly as well as ever.

DR. JOHN VAN BIBBER, OF BALTIMORE.

This author has urged the treatment of paralysis, especially that from traumatic and toxic causes, by means of the *elastic relaxation* of the paralyzed muscles. (*Transactions of the Medical and Surgical Faculty of Maryland*, 1875.) He employs an artificial muscle, made of an India-rubber ribbon, so disposed that the affected limb can be moved by the motion of the nearest portion of the body not involved in the paralysis. He maintains that in all forms of peripheral paralysis, from injury, cold, toxic influence and the like, where, not being able to restore the nerve to its normal condition, if we can, by mechanical means, give the affected muscles, as nearly as possible, their natural motions, we prevent any further degeneration in the muscles, and actually improve the condition of the nerve or nerves.

There are two results, he claims, to be derived from this course of treatment: first, the muscular fibre is improved, and its condition rendered more natural; second, through the improvement of the muscles, the distal extremities of the nerves are affected favorably; and, finally, the whole part is placed in the best hygienic condition

to receive the influence of the will, as soon as the lesion should commence to disappear.

In regard to *electricity* in traumatic palsy, there is but one practical rule in respect to the form of current to be chosen, and that is, whichever test will best act on the muscles is the one to be made use of. Muscles which seem only capable of response to galvanism will more slowly, but surely, amend under the use of a good primary current. Whatever form is employed, it is advisable to lessen the power as the muscles regain their excitability. It is often advisable to interrupt the electric treatment for a month, after it has been continued for two or three months. So, also, if neuralgia comes on during the treatment, it is best to pause for awhile.

The value of *massage* in the treatment of all forms of traumatic palsy is very great. If only the skin is to be acted on and excited, the operator should pinch lightly every part of the surface, and move it to and fro over the adjacent parts. The most intense redness may be brought about in this manner. When the limb is wasted, and there is a general sluggishness and loss of motion, the skin may first be treated by gently pinching and tapping it; then the joints are to be moved in turn; and, lastly, the muscles to be acted upon by firmly but gently kneading, rolling and working them, gradually increasing the power employed. A sitting by massage should last about an hour, and should be preceded by a local hot bath.

VI. THE COMPLICATIONS ARISING FROM INFECTION OF WOUNDS.

Anthrax (Charbon, Malignant Pustule)—Dissecting Wounds—Erysipelas—Gangrene—Glanders (Farcy)—Phagedæna—Pyæmia—Surgical or Traumatic Fever—Tetanus.

ANTHRAX (CHARBON, MALIGNANT PUSTULE).

The treatment of this infection in France, where it is not uncommon, may be illustrated by the following case reported to the Parisian Academy of Medicine by M. DAVAINE, in October, 1873. A young man, a tanner, having become infected from some skins prepared in his shop, noticed an anthracose œdema of the palpebræ. This affection is usually considered fatal in that country, hence a consultation was called. M. CÉZARD, at the suggestion of M. DAVAINE, treated the case by hypodermic injections of iodine solution of 1:500. The patient soon recovered. The same treatment was also adopted with success in subsequent cases.

The germs of this disease (which have been shown to be a species of bacillus, the *bacillus anthracis*), when it is epidemic among animals, may be destroyed by sprinkling the forage of the pastures with 1:50,000 solutions of sulphuric acid. In using the anti-virulent treatment, the system must also be well supported by stimulants, among which the carbonate of ammonia in large doses is the best. In using iodine, twice its weight of iodide of potassium is to be added, to increase the solubility and diminish its irritating properties. In extreme cases, the intravenous injection of iodine may be resorted to without hesitation.

NISSEN (*Deut. Med. Wochens.*, 1891, *Med. News*, 1892,) has shown by experiment and clinical demonstration that the immediate application of an elastic ligature to the proximal side of a wound infected with anthrax, together with a thorough cauterization of the wound, will prevent the development of anthrax. Either alone will fail, however, and they must be practiced early and in conjunction.

A case is published by DAVIES-COLLEY (*Lancet*, 1891), where

the excision of the focus of infection and application of ipecacuanha powder with morphia to the wound, was followed by recovery.

Dr. ESTRADÈRE treats malignant pustule very successfully by the administration of *carbolic acid* internally and externally.

Dr. BOMPAIRE recommends, in the *Montpellier Medical* for January, 1877, the following treatment:

1. In slight forms of malignant pustule, when the surgeon has been called in at the beginning, a simple cauterization with Vienna paste is sufficient, and Dr. BOMPAIRE believes that it stops the disease in the majority of cases.

2. When the tumor has acquired a certain development, when the general symptoms have shown themselves in the usual way towards the fourth or fifth day, cauterization should be preceded by a crucial incision through, as far as possible, the whole depth of the slough.

3. Finally, when medical assistance has been called in late, when the malignant pustule has reached the seventh or eighth day, and œdema has invaded a large surface, action must be taken even when the general symptoms are very serious, and life itself seems in danger. Observation shows that in these cases the excision of the slough, combined with vigorous cauterization with sulphuric acid, may be of great service and save the patient. Antiseptics, such as carbolic and salicylic acid, and tonics, should be administered internally.

BARKOFF (*London Med. Recorder*, 1890,) makes a free crucial incision into the pustule, and then cauterizes the wound well with pure crystallized carbolic acid. He then covers the surfaces of the wound with a thick layer of gray mercurial ointment, and orders it to be rubbed into the tissues all about the pustule several times daily and thoroughly. He prescribes internally:

128. R.	Acidi carbolic,	gr. vj	
	Aquæ destillatæ,	f. 3 ss	
	Syrupi,	f. 3 ss.	M.

Sig.—A tablespoonful five times a day. Chlorate of potassium is added to prevent stomatitis.

ARNOLDOFF (*Brit. Jour. of Dermatology*, 1890,) recommends deep injections into the pustule of the following:

129. R.	Hydrargyri bichloridi,	gr. ij	
	Sol. acidi carbolic (5 per cent.),	f. 3j.	M.

Sig.—Inject two syringefuls into the pustule twice a day.

The value of injections of these substances into the swelling and into the inflamed zone and healthy tissues about the pustule has

been recorded by a number of other writers besides the above, the recommendation of the remedies being quite uniform and hearty.

Deep injections of iodine are recommended upon the same principles by GUYON.

DISSECTING WOUNDS.

Those who are called upon to perform *post-mortem* examinations in cases of acute internal inflammations should have their hands well greased or oiled, as the poison may pass through the unbroken skin unless protected; and any scratches or abrasions should be covered with adhesive plaster, or, better, with collodion or photoxylon. If they are unlucky enough to prick or cut the hand, the first thing is to tie a ligature tightly around above the wound, and then squeeze it so as to encourage a copious flow of blood. Next it should be well washed and sucked for a long time.

Should unpleasant symptoms supervene, rest, country air, purgation and generous living are essential. Stimulants are demanded early and constantly. The wound should be kept open and poultices of an antiseptic and stimulant nature applied to cleanse the surfaces and destroy all micro-organisms.

In regard to *cauterizing* dissection wounds, surgeons differ. Mr. T. HOLMES and Prof. GROSS are of opinion that undoubtedly this measure gives more security against absorption of the virus. Mr. ERICHSEN thinks it is better not to apply caustics. If any be employed, he prefers a drop of pure nitric or carbolic acid. The nitrate of silver can never do much good.

It should be remembered that fluids effused into the peritoneal and pleural sacs are decidedly the most virulent.

COMMON METHOD ABOUT UNIVERSITY OF PENNSYLVANIA.

It has been the editor's practice, in a considerable experience in the treatment of post-mortem wounds, to carefully cleanse the wound at once, the wounded operator grasping the injured finger or the wrist, if the hand has been hurt, immediately, and compressing the part to cause stagnation of the blood and to increase the hemorrhage. While holding it thus, the part is well washed at the tap, and the wound sucked. Washed again, glacial or concentrated acetic acid is introduced into the wound until the momentary

pain on introduction is no longer felt. After this, if it be necessary to proceed with the autopsy or dissection, the wound is sealed with collodion or photoxylon. As soon, however, as danger of infection is over, this is at once removed. If the wound be quite small and trifling and the dissection subject not dead of an infection, nothing more is done at present; but if it be of any severity, it is again carefully washed and irrigated with strong bichloride solution, the edges approximated, and the whole covered with antiseptic dressing. As a matter of precaution, pills of iron, quinine and strychnine are given, with a half ounce of whisky twice daily.

130.	R.	Quininæ sulphatis,	gr. xij	
		Sulphatis ferri exsiccati,	gr. xij	
		Strychninæ sulphatis,	gr. $\frac{1}{3}$.	M.
		Ft. massa ex qua ft. pilulæ no xij.		
		Sig.—One four times daily.		

The wound is examined in a few hours and again at intervals of twelve or twenty-four hours. If there be local pain, heat, redness and swelling, indicating inflammatory action, the presence of pus is to be suspected. The wound is to be opened entirely, and poultices of linseed meal well dusted with charcoal to be applied. Peroxide of hydrogen should be injected or sprayed into the wound, and iodoform dusted over the surface when the poultice is applied. When by these means, and energetic use of the internal remedies, the inflammatory symptoms subside, the wound may be again dressed, and usually heals readily.

PROF. THEODOR BILLROTH.

For the first treatment of the part poisoned with cadaveric matter, this author advises that cold water be let run on the wound for a long time, and not to check the bleeding, if there is any. From a considerable experience on himself and his students, he considers cauterization *immediately after contact* not advisable. But if later the parts around the wound redden, the part may be cauterized with nitrate of silver or fuming nitric acid. This is very painful, but it acts well. Not unfrequently pus forms again under the slough; in this case, the slough must be removed and the spot again cauterized; and this is to be repeated until no more pus forms under the slough.

Should lymphangitis begin, the arm should first of all be placed on a splint to keep it quiet, and the appropriate treatment for lymphangitis be instituted.

If indurated lymphatic glands remain after infection with cadaveric poison, daily *warm baths* are the best means for promoting the excretion of the poison.

DR. THOMAS H. TANNER.

After the first attention to the wound, according to the usual surgical principles in such cases, the physician must attend to the inflammation of the tissues and absorbents, and the asthenic symptoms which follow. To support the strength, *quinine* in large doses is demanded. When there is great exhaustion, with low, muttering delirium and restlessness, it may be advantageously combined with ammonia.

131. R.	Tincturæ quiniæ,	f. ℥ j	
	Glycerini,	f. ℥ vj	
	Spiritus ammoniæ aromatici,		
	Spiritus ætheris,	āā f. ℥ iiij	
	Extracti opii liquidi,	℥ xxx	
	Infusum cinchonæ flavæ,	ad f. ℥ viij.	M.
One-sixth part every six hours.			

In order to neutralize the poison absorbed into the system, various writers recommend the *sulphites*.

132. R.	Sodii sulphitis,	℥ ij-ij	
	Infusi cinchonæ,	f. ℥ ij.	M.
This amount three or four times a day.			

The sulphite of magnesia may be employed in doses of ℥j-ij, dissolved in one or two ounces of water, every three or four hours. It is richer in sulphurous acid than the sulphite of soda, is more stable, and has a much more agreeable taste.

The *chlorate of potash* has also been recommended in this form of blood-poisoning.

ERYSIPELAS.

DR. CHARLES W. ALLEN, OF NEW YORK.

This gentleman (*American Jour. of the Medical Sciences*, 1891), from an extended experience in the treatment of erysipelas in the Charity Hospital of New York, has indicated the following outline as his preference in the matter of dealing with the affection.

Internally he employs such symptomatic treatment as each case seems to require, giving antipyretics only in high or persistent fever (over 103½° F. or 104° F.). Of the antipyretics he selects anti-

pyrine, administering it in doses of gr. xv–xx to an adult, guarded with alcohol. Cooling drinks may be given as the comfort of the patient demands. Calomel or saline aperients are administered if there is any tendency to constipation. If there be pronounced weakness alcohol is given fully, especially at critical periods, together with iron or iron and quinine. Digitalis is employed in case of much fever and prostration; bromides where there is delirium; antipyrine or phenacetin for headache, with cold applications to the head. The diet should be as concentrated and nutritious as possible.

Locally he recommends that the erysipelatous area be painted thickly with ichthyol in collodion:

133. R. Ichthyol,
Ether,
Collodion,

f. 3j–ij
f. 3j
f. 3j.

M.

The surrounding healthy skin should be included in the part painted over with this mixture. If the scalp be the affected region, a watery solution or an ointment of ichthyol may be employed. In order to arrest the spread of the process, Dr. ALLEN states that firmly applied strips of adhesive plaster should be placed about the inflamed part, or that by scarification in the surrounding healthy parts a wall of reactive inflammation be aroused, or that both these measures may be employed, the latter to follow the former in case it passes the adhesive bands. These adhesive straps are to be used about the face and head as well as on an extremity, shaving the hair if necessary for their firm application; the bony base for compression afforded by the skull makes this part well suited for the employment of this mode of treatment, and if the disease pass beyond one band, another should be applied higher up. It is perhaps best where the scalp is threatened to shave off the hair, and then the collodion and ichthyol can be used upon it as elsewhere. The point where the erysipelas had its origin, an ulcer, abscess, pustule, carious tooth, etc., must be carefully cleansed and disinfected, a solution of peroxide of hydrogen being useful in this connection. The author does not believe that the so-called idiopathic facial erysipelas differs from ordinary traumatic erysipelas, and believes that there is always some point of entrance of infection which should be sought for and disinfected. Often such a measure leads to a spontaneous halt in the progress of the disease.

Dr. ALLEN has prescribed as an internal remedy in these cases this combination of quinine and iron:

134.	R.	Quininae sulphatis,	3ss	
		Tr. ferri chloridi,	f. 3ij	
		Aquæ destillatæ,	q. s. ad f. 3ij.	M.

Sig.—One drachm every two hours.

Ichthyol has also been very favorably commented upon by KLEIN (*Berlin. Klin. Wochenschr.*, 1891). The affected part is washed thoroughly with soap and water, and then an ointment made of equal parts of ichthyol and vaseline, or of equal parts of ichthyol, lanolin, and water, is well rubbed into the diseased area and about it for the breadth of a hand. Then a layer of salicylic cotton covered with a layer of absorbent cotton is placed over the anointed surface, and changed several times daily, until the temperature has been normal for several days.

CHARITY HOSPITAL, NEW YORK.

The same writer, in the article mentioned, also details the following plan of treatment as pursued at the Charity Hospital wards, a mode of treatment based upon the same views as held by Dr. ALLEN, and one which has given very favorable results, comparing well with the method outlined as his preference. Local applications are made of the following:

135.	R.	Tr. benzoini composita,	f. 3ij	
		Collodion,	f. 3j	
		Glycerini,	f. 3j.	M.

Occasionally salicylic acid has been incorporated into the mixture. Internally 20 minims of the tincture of the chloride of iron are administered thrice daily. In cases of traumatic origin where there is little tension and the process is quite superficial, this protective and antiseptic paint is used and a hot solution (1:5000) of bichloride of mercury is applied to the wound, together with the internal use of iron as above. Where there is much tension and the skin is broken by blebs or otherwise, hot bichloride solution (1:6000) is applied and several coats of the paint are used as a limiting strip about the affected surface. Quinine is used where the temperature is high, as well as antipyrine. Turpentine is sometimes used instead of iron, in dose of 10 drops three times daily. Other drugs used are much as outlined in the treatment by Dr. ALLEN. Baths of creolin, injections of iodoform and iodine about the affected area have been employed, but with little or no success.

The following application advised by PETRESCO (*Med. News*, 1890,) is of the same general character:

136. R.	Acidi carbolic,	℥ xiv		
	Collodion.			
	Glycerini,	āā	f. 3 vj.	M.

The protection of the skin and the application of a means of destroying the micro-organismal cause of the disease underlie these methods just detailed, and are the basis of the following:

Lanolin charged with *bichloride of mercury* has been used with marked success by WENDERROTH and by GOTTSTEIN (*Therap. Monatshefte*, 1891). The ointment is spread thickly over the erysipelatous patch and about it. Internal medication is to be entirely symptomatic.

TALAMON (*Med. News*, 1891,) and CAYET spray over the erysipelatous area of skin for a minute, two or three times a day, the following:

137. R.	Hydrargyri bichloridi,			
	Acidi citrici aut tartarici,	āā	gr. xv	
	Alcoholis (90 per cent.),		f. 3 iss	
	Ether, sulphurici,	q. s. ad	f. 3 iij.	M.

It should not be used about the eyes or nostrils, as it is a caustic. If used from the beginning of the disease, CAYET states that the inflammation will yield in a day, and the affection be terminated by the fourth day.

ROSENBAACH (*Amer. Jour. Med. Sci.*, 1891,) recommends that the surface of the diseased area with a wide part about it be washed with soap and water, and then bathed with a five per cent. solution of phenic acid in absolute alcohol. Very brilliant results are said to result both as regards the general and local phenomena. NOLTE paints the surface several times daily with a mucilage of gum arabic, containing three to five per cent. of phenic acid. HALLOPEAU recommends a solution of salicylate of sodium (five per cent.). Thick compresses wet with this solution are applied, and then covered with rubber cloth to prevent evaporation. Almost immediate relief is felt, and it is said to result in cure in four or five days. KOCH applies the following ointment over the surface, and then covers it with sheet rubber (rubber dam of the dentist):

138. R.	Creolin,	i		
	Iodoform,	4		
	Lanolin,	io.		M.

MR. T. HOLMES.

The depletory treatment of erysipelas is almost abandoned. In the plethoric and strong, after the bowels have been freely opened by a mercurial purge, salines with small doses of antimony, and light fluid diet without stimulants, should be ordered. In the cellulo-cutaneous form after injuries, the purge should be employed, but an early resort to free stimulation is demanded. When there is much nervous excitement, opium should be carefully administered; but as a rule, opiates are to be avoided in erysipelas, except in the phlegmonous form after injuries. Camphor, ammonia and light tonics, generally act beneficially after the bowels have been regulated. The free exhibition of the tincture of the perchloride of iron is very beneficial in many cases; gtt. xv-xx every three hours must be given in order to produce its specific effect; and it will not agree if the tongue is foul, and the general fever is rising. Salines with small doses of antimony should be prescribed in that condition, and the iron resumed subsequently.

Locally, the exclusion of the air from the inflamed surface is very grateful. An ointment of calamine or of lead may be used for this purpose; or the part is defended by a layer of cotton wool, or some bland, warm lotion is used, as dilute solution of the subacetate of lead with opium, or a solution of the sulphate of iron.

- | | | | | |
|------|----|------------------------|-----------|----|
| 139. | R. | Ferri sulphatis, | 3j | |
| | | Aquæ, | Oj. | M. |
| Or, | | | | |
| 140. | R. | Tinct. ferri chloridi, | f. 3ij | |
| | | Aquæ, | f. 3viij. | M. |

Incisions ought to be made freely and boldly into the cellular tissue, when the inflammation is high, the tension great, and gangrene threatening. A good proof of their necessity, and a good augury for their beneficial influence, is the free gaping of each cut as it is made. Many surgeons speak favorably of multiple punctures with a lancet, as a substitute for incisions, but they often fail to furnish adequate relief. When, as a result of the disease, there remains stiffness and loss of motion of the muscles and joints, diligent passive motion must be employed, the parts must be well steamed, and the patient encouraged to use them.

DR. J. E. GARRETSON, OF PHILADELPHIA.

This writer, (*Medical and Surgical Reporter*, July, 1870,) states

that for a number of years he had met with no case of erysipelas which did not yield to the local application of a combination of iron and bark, which he regarded as a natural specific. The combination, as usually prescribed, was the following:

141. R.	Tinct. ferri chloridi,			
	Tinct. cinchonæ,	āā	f. 3 ij	
	Quininæ sulphatis,		grs. xxx	
	Aquæ,		f. 3 iss.	M.

Apply by means of a camel's-hair brush, four times a day.

J. MILNER FOTHERGILL, LONDON.

This author maintains that true erysipelas is a totally different affair from that form of dermatitis which follows injuries to the skin. The true form is that often seen in erysipelas of the head and neck. In such erysipelas, tonics, stimulants, and half-drachm doses of the tincture of *perchloride of iron* every four hours, together with milk and nutritive food, form the best line of treatment. As external applications, he prefers flour, oxide of zinc, cotton-wool, or warm solutions of acetate of lead and opium. The traumatic form should be treated by cooling medicines and applications of lead and opium, or by applying the solid nitrate of silver around the blush, which often arrests its spread.

In phlegmonous erysipelas, the most active stimulant and tonic measures are demanded, together with strict antiseptic treatment and free evacuation of the deposits of pus. Sometimes the pronounced asthenia may be successfully combatted by a resort to *digitalis*, in addition to the measures just mentioned.

DR. A. H. HYATT, OF CHICAGO.

This physician has found *iodide of potassium* of great value in erysipelas (*Chicago Med. Jour.*, October, 1893), especially in severe phlegmonous cases. When called to a case he prescribes:

142. R.	Potassii iodidi,		3j	
	Aquæ,			
	Syrupi simplicis,	āā	f. 3 j	
	Ess. gaultheriæ,		f. 3 ss.	M.

A teaspoonful in water every two hours.

When the violence of the disease is subdued, a less quantity is given. If the bowels are constipated and tongue brown, a mercurial laxative is indicated. If there is prostration, quininæ sulphas, gr. ij every five hours, with whisky and animal broths, is called for.

As an external application:

143. R.	Plumbi acetatis,	3j	
	Glycerini,		
	Aquæ,	āā	f. 3j. M.

Keep the parts moist with this.

Twenty-four to forty-eight hours are usually sufficient to subdue the disease, and four or five days to complete the cure.

DR. WILHELM ZUELZER, CHARITÉ HOSPITAL, BERLIN.

This observer believes no specific treatment for erysipelas has been established. For the rational treatment for the more serious forms, the mineral acids may be used, and quinine in full doses:

144. R.	Quininae sulphatis,	3j	
	Acidi sulphurici diluti,	f. 3ij	
	Aquæ,	f. 3iij.	M.

A dessertspoonful three times a day.

Cold baths, several times a day, are a valuable means to reduce the temperature, especially in protracted cases. Violent cerebral symptoms must be met by cold applications to the head, and by active purgatives. When œdema of the glottis is threatened, the inhalation of solutions of tannin and alum is called for, and the energetic use of cold, by the administration of small pieces of ice and by ice-bags to the throat. Local treatment may be limited to sprinkling with powdered starch and covering with wadding. To exert a mild compression, the skin may be painted daily with:

145. R.	Collodion,	f. 3j	
	Glycerini,	f. 3ij.	M.

Great tension of the skin may be relieved by warm poultices or by superficial punctures. In violent inflammation, ice-bags and ice-water compresses are indicated.

MR. JOHN HIGGINBOTTOM, LONDON.

This surgeon maintains (*Practitioner*, January, 1869,) after forty years' experience, that no agent is so safe, powerful and efficacious as the *nitrate of silver*. The affected part should be well washed with soap and water, then with water alone, to remove every particle of soap, which would decompose the nitrate, and then be wiped dry with a soft towel. He employs the following solution:

146. R.	Argenti nitratis,	℥iv	
	Aquæ,	f. 3 ss.	M.

This should be applied two or three times carefully over the affected surface and beyond, on the healthy skin, to the extent of two or three inches, by means of a piece of clean linen attached to the end of a short stick. In the course of twelve hours it will be seen whether the solution has been well applied; if any part of the inflamed surface be found unaffected, the application must be repeated. By applying the nitrate so as to encircle the inflamed part, the extension of the disease may sometimes be arrested. Iodine (see below) is preferred by some physicians.

DR. RUSSELL REYNOLDS, LONDON.

Several preparations of *iron* have been supposed by various surgeons to exert a specific effect on erysipelas. VELPEAU used the sulphate; but the most popular has been the chloride of iron. Dr. RUSSELL REYNOLDS advises the following formula:

147. R	Tincturæ ferri chloridi,			
	Spiritus chloroformi,			
	Glycerini, "	āā	f. $\frac{3}{5}$ j	
	Aquæ,		f. $\frac{3}{5}$ iij.	M.

One tablespoonful in a wineglassful of water every four hours.

So soon as the first effects of this medicine, which are often seen after the second dose (*i. e.*, the local inflammation ceasing to extend, the inflamed part becoming paler, less tender, less swollen, the feeling of exhaustion diminishing, and with it the exaggerated frequency of the pulse and the exalted temperature, and frequently sleep ensuing,) the quantity of the tincture may be reduced. Alcoholic stimulants are frequently indicated in connection with this treatment. Cool lotions should be avoided, the only local applications called for being hair-powder and cotton or wadding, to protect the parts from cold currents of air.

The Germans use *Betuscheff's mixture*, the ethereal tincture of chloride of iron, the latest improved form of which is:

148. R.	Tincturæ ferri sesquichloridi,	1 part
	Spiritus ætheris nitrosi,	4 parts.

Mix and expose to the rays of the sun in well-closed bottles till the brownish color disappears. One to two teaspoonfuls every three hours.

It is well, in this connection, to note that Dr. CHARLES BELL, of Edinburgh, who strenuously advocates the treatment of erysipelas by tincture of *muriate* of iron, holds that a natural difference exists between the effects of the two so-called similar preparations of iron,

viz., the *muriate* and the *perchloride*. He insists particularly on the administration of the former preparation in full and frequent doses.

PROF. ROBERTS BARTHOLOW, CINCINNATI.

This writer attributes to *belladonna* "a real curative power in erysipelas," especially in idiopathic and facial erysipelas. It may be combined with aconite or digitalis, if the fever is high; with quina, if there is depression.

149. R.	Quininæ sulphatis,	3ss	
	Belladonnæ extracti,	gr. iij.	M.
Make ten pills. One every four or six hours.			

He questions the value of the chloride of iron treatment, but believes that by the local use of nitrate of silver effective results may be obtained in traumatic erysipelas. For the facial variety, he prefers inunctions of oil and cocoa butter.

NOTES ON REMEDIES.

Aconite was a favorite remedy, in sthenic cases with much febrile action, of the late Mr. LISTON, of London, gtt. $\frac{1}{2}$ -1 every fifteen minutes.

Ammonii Carbonas is strongly recommended by Sir THOMAS WATSON, who precedes its use by a purgative. Mr. CAMPBELL DE MORGAN remarks that it is most appropriate where nervous prostration or excitement is prominent, where the skin is soft and cool, the tongue moist and flabby, the pulse quick, large and weak. It is then a valuable remedy. But when the tongue is hard, dry and fissured, the skin hot and dry, it does not agree.

Belladonna, in repeated doses of gr. $\frac{1}{16}$, is often of benefit in reducing arterial excitement. Its effects are enhanced by the previous administration of aconite.

Ferri Bromidum has been employed, with good results, by a number of American physicians.

Ferrichloridi Liquor. A very popular remedy, both externally and internally. (F. 141, 147.)

Potassii Chloras, in combination with the tincture of cinchona, is recommended by Dr. COPLAND in erysipelas supervening upon anasarca, or if there be any tendency to gangrene, or if the temperature of the surface be low and the color deep or dark.

Quininæ Sulphas is indicated in all cases where the tongue becomes clean and the skin moist, and should at once be resorted to if the pulse be soft, tremulous or very rapid, the heat moderate and the delirium low and

muttering, or if suppuration or sloughing has commenced. In such cases it may be combined with the tincture of the chloride of iron, with great advantage. (F. 141.)

Sodii Sulphis (as also the bisulphite, and the hyposulphite, and sulphocarbo-
late of soda,) is strongly recommended by Professor POLLI, of Milan.

Terebinthinæ Oleum has been given with great benefit when the coma has been intense, the pulse sinking and the tongue dry and glazed. Dr. COPLAND counsels the local application of turpentine epithems.

LOCAL APPLICATIONS.

Adeps. Lard inunction is regarded by ERASMUS WILSON as superior to all fluid applications. He first relaxes the skin with hot water or steam, then saturates the surface with hot lard, and afterward covers with wool.

Ammonii Carbonas allays the irritation of the surface. The following lotion, recommended by ERASMUS WILSON, may be employed :

150. R.	Ammonii carbonatis,		
	Plumbi acetatis,	aa	℥j
	Aquæ rosæ,		f. ℥ viij. M.

Argentri Nitræ. See page 193.

Brominium. Dr. GOLDSMITH, U. S. A., recommends (*American Medical Times*, 1863,) the following solution :

151. R.	Brominii,		℥j
	Potassii bromidi,		gr. clx
	Aquæ destillatæ,	q. s. ad	f. ℥ iv. M.

Calx Chlorinata. The following solution has been found of benefit :

152. R.	Calcis chlorinatæ,		℥j-ij
	Aquæ,		Oj. M.

The parts should be kept constantly wet with this lotion.

Camphora. M. DELPECH, of Paris, uses, with good effect, an application containing this drug. It consists in painting the affected surface with a solution of camphor in ether (equal weights) ; and when this is employed in erysipelas of the face, and the affection has not yet reached the hairy scalp, its progress is usually arrested.

Carbolicum Acidum. It appears not improbable that erysipelas is the result of the entrance of minute organisms into the subcutaneous connective tissue and of their multiplication. Acting upon this idea, the experiment has been tried of injecting subcutaneously a one per cent. solution of carbolic acid into places around the disease. It is of especial value as a local external application (p. 188).

Collodion is often used to exclude the air. It is used as a basis for the

local applications in many of the most recent methods of dealing with erysipelas (p. 188). M. BROCARD commends the application of a layer of collodion round the margin of the erysipelatous blush, for a distance of from six to eight centimeters, and also over the affected part. The object of the former is to exercise a circular compression, so as to separate the affected part from the rest of the cutaneous surface. It is necessary to examine these layers once or twice daily, and to repair the fissures which occur. The collodion used must be free from oil.

Creolin is recommended by various authorities as an antiseptic agent to be incorporated in local applications. It has been suggested for use in baths.

Cresote has been recommended by Dr. FAHNESTOCK as a local application. (*Am. Jour. Med. Sciences*, No. 13.)

Ferri Chloridum. Dr. W. L. WHITE remarks in the *British Medical Journal*: Having, during a course of several years, in hospital and private practice, used a variety of local applications in simple or cutaneous erysipelas, I have for two years discarded all for perchloride of iron, which I have never seen to fail. The form in which I use it is the following: Equal parts of liquor ferri perchloridi fortior (B. P.) and spiritus vini rectificatus; the whole affected surface, and about an inch beyond the affected parts, to be painted over with the lotion by means of a camel's-hair brush.

Ferri Sulphas was much employed by VELPEAU, both in solution and in ointment:

153.	R.	Ferri sulphatis, Aquæ,	3j Oj.	M.
154.	R.	Ferri sulphatis, Adipis,	3ij 3j.	M.

Glycerinum is of service, by allaying irritation and preventing the action of the air.

Hæmatoxyli Lignum has been found by M. DESMARTIS (*Medical Times*, June 14th, 1862), of value in severe traumatic erysipelas, applied in ointment:

155.	R.	Extracti hæmatoxyli, Adipis,	āā 3 ss.	M.
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Hydrargyri Chloridum Corrosivum was found by Dr. DEWEES to be as effectual as mercurial ointment, when applied in the following solution:

156.	R.	Hydrargyri chloridi corrosivi, Aquæ,	gr. j f. 3j.	M.
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Hydragryri Unguentum sometimes arrests the course of the disease, when smeared over the parts three or four times. It usually causes salivation.

Hydrogen Peroxide is of value in cleansing the suppurative focus, often the starting point of the erysipelatous process. It is also a valuable agent sprayed over the inflamed surface several times daily.

Ichthyol has been extensively used as antagonistic to the erysipelas germs by NUSSBAUM and BRUMM, ALLEN and others (p. 187).

Iodine, painted over the inflamed parts, often quickly alleviates the symptoms. By many it is preferred to the nitrate of silver solution.

Iodoform is recommended for its antiseptic properties (F. 138).

Lanolin is a preparation of fatty nature, used as the basis for ointments, and possesses the advantage of miscibility with water and watery solutions.

Pix Liquida. Dr. HUETER recommends :

157.	R.	Picis liquidæ,	℥ ss	
		Axungiæ,	℥ ij.	M.

Anoint the affected parts three times a day.

In the hospitals of Prague a paste composed of equal parts of tar and alcohol is the only local dressing in this disease.

Plumbi Subacetatis Liquor Dilutus, kept constantly applied, soothes the parts.

Plumbi Nitras. Dr. JOHN FIRNAT says (*Med. Times*, 1876) he has found nitrate of lead dissolved in glycerine the best of all applications in this disease.

Potassii Permanganas is recommended by Dr. LEAVITT (*Braithwaite's Retrospect*, vol. VI., 1867,) in the following solution :

158.	R.	Potassii permanganatis,	gr. xxx	
		Aquæ,	f. ℥ j.	M.

Potassii Silicas has been found by Prof. ALVARENGA, of Lisbon, to be an admirable application. It is the result of physiological experiment, and not of mere empiricism, the professor having tried the drug first on himself. When applied to the skin, immediately a sensation of coolness and retraction is felt, the skin becomes pale, most markedly so if it has previously been red and congested, and thermometric observations before and after the application prove that there occurs a real diminution of temperature. These phenomena last from five to sixty minutes, and then disappear. They are marked in proportion to the concentration of the solution employed.

Purgatives. Free purgation and the use of turpentine enemata will be in

some cases useful. When coma has come on after marked inflammatory symptoms with a rapid pulse, and thickly-coated, black, dry tongue, Dr. COPLAND says he has seen the most marked benefit from the use of calomel in a full dose, with camphor, followed by turpentine and castor oil in the form of an electuary, to be placed on the back of the tongue, and repeated until the bowels begin to act, when its operation may be promoted by enemata. Copious offensive black motions are generally brought away, with marked amelioration of the symptoms. Dr. CAMPBELL DE MORGAN has added his testimony to the value of this treatment in apparently hopeless cases. (*Holmes' System of Surgery*, I., p. 254.)

Sodii Salicylas in solutions of 5 or 6 per cent. strength has been recommended, thoroughly applied to the inflamed surface.

Sulphurosum Acidum, with equal parts of glycerine, has been found to arrest the spread of the inflammation and relieve the burning.

Terebinthinæ Oleum has been used with success by Dr. VON KACZOROWSKI. His recipe is :

159. R.	<i>Terebinthinæ olei</i> ,	3x	
	<i>Acidi carbolic</i> ,	3j.	M.

Paint on the affected part and rub well into the surrounding parts. Then lay on linen compresses wet with solution of acetate of lead (1 to 100 parts), and over these, iced cloths. Chlorate of potash and opium internally.

Mechanical Treatment. It has been recommended by WÖLFER (*Med. Press and Circular*, 1891,) to surround the erysipelatous area by firmly applied adhesive straps, bringing them close up to the margin of the inflammation. By this means pressure is exerted, tending to prevent the infiltration of the subcutaneous tissues by the streptococci of the disease. The straps should be left on several days after the disappearance of the redness.

Scarification has been suggested and recommended as a means of preventing the spread of the affection. A line of punctures or scarifications is carried about the diseased area in the healthy skin, and some irritant applied with a view of causing a reactive inflammation which shall limit the infectious process.

GANGRENE.

Gangrene from a surgical standpoint may for therapeutic reasons be divided into 1. *Hospital Gangrene*, 2. *Senile Gangrene*, and 3. *Gangrene from embolism or thrombosis*. The first of these is the

essentially infectious form, and apt to occur as a wound complication, but the other forms may for convenience also be treated of here. Hospital gangrene is dependent on a local infectious cause, and its treatment is therefore primarily local, general measures entering simply as symptomatic remedies. Senile gangrene is largely dependent upon vascular alterations, usually of a chronic nature, and of more or less general extent, although only locally active in the causation perhaps. Embolic or thrombotic changes implicate even wider fields, may have their origin at almost any portion of the body, and often are of hæmic origin. In other words, the generalization of the disease-cause varies from little to great degree in these forms of disease, and in the same manner the treatment varies, although to a less extent perhaps.

1. HOSPITAL GANGRENE.

PROF. VON NÜSSBAUM, OF MUNICH.

This surgeon, in an able article, (*Archiv für Klinische Chirurgie*, January, 1876,) writes with regard to the preventive and curative treatment of this affection. In 1872, the first year of its appearance in the hospital, the gangrenous condition of the wounds in those attacked was always readily and successfully controlled by the local application of lotions, containing nitrate of silver, corrosive sublimate or carbolic acid; but as the distinctive changes became more and more acute, it was found necessary to have recourse to more active means, and to apply caustic pastes and the *actual cautery*. Energetic applications of the latter agent proved the most efficacious, and a perfectly successful result of such treatment was usually indicated by a prompt fall of the patient's temperature. During the prevalence of the gangrene, many different attempts were made to protect healthy wounds and sores from contagion. The continuous water-bath and applications of ice, moist warmth, and lotions of carbolic acid, salicylic acid, chlorine water, etc., were tried, but without any good results. At last LISTER'S *antiseptic* plan of dressing was practised most strictly, so that no open surface was dressed save under the carbolic acid spray, and no instruments or dressings used save after careful disinfection. The hospital gangrene at once ceased, and not a single case, Prof. VON NÜSSBAUM states, has been observed in his ward since the adoption of this plan of dressing, although at the period of its first use eighty per cent. of the surgical patients had been affected. Prof. VON NÜSSBAUM asserts that he feels it his duty

to testify to the efficacy of LISTER'S method as a prophylactic against hospital gangrene. He insists, however, upon the necessity of carrying out this plan of dressing in all its details. He holds that the secret of its great success in this instance lay in a pedantic exactness in its mode of application, and he expresses it as his opinion that the surgeon who allows a wound to remain for one second open to the air, and unprotected by the carbolic acid spray, cannot reasonably expect any good results from his practice of LISTER'S method.

PROF. JOSEPH JONES, M. D., LOUISIANA.

The following formula has proved useful in hospital gangrene, and other diseases of an asthenic typhoid character:

160. R.	Tincturæ ferri chloridi,	f. ℥ j
	Potassii chloratis,	℥ iv
	Quininæ sulphatis,	℥ ij
	Acidi hydrochlorici,	f. ℥ j
	Aquæ destillatæ,	f. ℥ ij.

Dissolve the chlorate in the water, add the hydrochloric acid, then dissolve in this mixture the quinine, and finally add the iron. Thirty to sixty drops, in water, three or four times a day.

Such a mixture should not be continued for more than two weeks. In place of it the following is of great value in gangrenous and ill-conditioned wounds:

161. R.	Ferri et potassii tartratis,	℥ j
	Acidi tartarici,	℥ ij
	Quininæ sulphatis,	℥ ij
	Aquæ destillatæ,	f. ℥ xij.

Dissolve the acid in the water, add the quinine, and last the iron. Shake well before using. A tablespoonful in a wineglassful of water thrice daily.

When the iron seems too astringent, the following combination is valuable:

162. R.	Strychninæ sulphatis,	gr. ij
	Quininæ sulphatis,	℥ i
	Ferri redacti,	℥ iiij
	Extracti rhei,	℥ ij.

M.

Make one hundred pills. One three times a day.

When there are signs of syphilis or scrofula present, the following fills the important indication of acting both as a tonic and alterative:

163. R.	Syrupi ferri iodidi,	f. ℥ j
	Tincturæ iodinii,	f. ℥ ij
	Potassii iodidi,	℥ ij
	Syrupi zingiberis,	f. ℥ vj
	Aquæ destillatæ,	f. ℥ j.

Dissolve the iodide of potash in the water, add the tincture of iodine, and then mingle with the syrups of iodide of iron and ginger. A teaspoonful in a wineglassful of water three times a day.

As a local application, the liberal and thorough application of fuming nitric acid proved most successful in the Confederate service.

DR. BEDFORD BROWN, OF ALEXANDRIA, VA.

Dr. BROWN (*Medical News*, 1891,) in a valuable paper based upon his experiences in private and military surgery, presents the following as an outline of the method of procedure he has come to regard as the most favorable. "Hospital gangrene is probably due to a combination of influences, namely, an infectious poison acting on a wound in a constitution impaired by the various depressing influences of army life and the hardships of war. During the recent war, in the field-hospitals under my charge, I found that separation of the wounded at great distances, their removal from house-tents, and the substitution of tent-flies under trees in high, unused localities, where fresh breezes could have fair sweep, the frequent and systematic changing of their location, the burning of all debris in the old localities, the methodical enforcement of cleanliness, and the administration of nourishing food, with the application of hot boiled water, and a saturated solution of zinc sulphate and dilute sulphuric acid to the gangrenous wounds, gave better results than any other method." Proceeding, Dr. BROWN pays a glowing compliment to the progress shown in the employment of the silent, painless but potent antiseptic agents of to-day over the horrors of the ancient caustic system of treatment. Antiseptic and disinfectant action is not all that is necessary, however. There is needed yet some agent to stimulate and restore healthy vital action in the parts, and to stop the progress of necrosis. The following formula in this surgeon's hands has seemed to especially fulfil these indications, acting as a potent stimulant to the tissues around gangrenous structures, arousing the circulation, and at the same time causing the gangrenous parts to shrink and separate from the sound parts.

164. R. Sulphate of zinc,
Dilute sulphuric acid,
Water,

$\frac{3}{4}$ j
f. $\frac{3}{4}$ ss
Oj.

M.

Dr. BROWN is in the habit of applying this solution every three hours on cotton wool; and if the sloughs are dense and impenetrable the solution may be injected into it. As soon as healthy tissue is met, the further employment of the remedy is inadmissible on account of pain, and mild and soothing antiseptic dressings are to be applied.

Another agent of great efficiency in the same direction is *bromine*, which this surgeon has been accustomed to use in precisely the same manner in a solution of two fluid drachms of bromine to a pint of water. Hot (120° F.) sterilized (boiled) *water* was used with the greatest success by Dr. BROWN during the Civil War in the dressing of wounds to promote reaction, prevent gangrenous tendencies, and to improve the condition of unhealthy wounds.

As general treatment, *iron*, *quinine* and *strychnine* are the most important drugs. Where the circulation is feeble, arterial tension low, and the vaso-motor system almost paralyzed, with a tendency to reduction of temperature in the wounded parts, the author recommends *nitroglycerine*, in doses of gr. $\frac{1}{32}$ or gr. $\frac{1}{160}$, every 3 hours. Alcoholic stimulants are indispensable, but must be given in full doses to be of any service.

SURGEON MIDDLETON GOLDSMITH, U. S. A.

This surgeon recommended, as the most efficient local application :

165. R.	Brominii, Potassii bromidi, Aque destillate,	f. $\frac{3}{4}$ j 3 ii ad f. $\frac{3}{4}$ iv.	M.
To apply to the part as a lotion.			

The pure bromine, as a cauterant to the dangerous surfaces, proved most efficient in the Federal hospitals.

DR. A. NETTER, OF RHEIMS.

This surgeon, following DUPUYTREN, has found *camphor*, early applied and in large quantities, in the form of a powder, a "sure cure" for hospital gangrene and phagadenic chancres.

PROF. KOENIG, OF PRUSSIA.

Prof. KOENIG used with much success *chloride of zinc*. It should be but little diluted, rather oily. Bits of cotton should be dipped in this solution, and afterwards pressed out. A sufficient number of these pieces are placed either flat on the surface of the wound, or partially pressed into the folds of the tissue, the wound having previously been freely opened with the scissors and knife. It is sufficient in most cases to let this caustic tampon remain eight or ten minutes. A whitish crust is formed, which requires five or six days to separate. Of course the patient should be chloroformed during the application. If untouched parts remain, the caustic should be again applied.

PROF. S. D. GROSS, OF PHILADELPHIA.

This distinguished surgeon was in the habit of recommending a purge in the beginning of the case, a purge of decided character. At present this is not regarded with much favor, although that the bowels should be kept regular is generally urged.

When the system begins to flag, quinine, iron, brandy and broths are called for. The best preparation of iron is the tincture of the chloride, gtt. xv-xxv every three hours in some mucilaginous fluid. But the great constitutional remedy is *opium*, in large doses, gr. ij-iv every six or eight hours, in union with a diaphoretic, as in Dover's powder. The diet should be nutritious, abundant ventilation provided, and scrupulous cleanliness observed. His favorite local remedy has always been acid nitrate of mercury, freely diluted with water and carefully applied with a soft mop. But if the wound is cleansed properly of slough and sanious matter, he is of opinion that it differs little which of the numerous local applications recommended is used.

2. SENILE GANGRENE.

DR. E. M. MOORE, OF NEW YORK.

In the *International Encyclopædia of Surgery* this surgeon cautions that as the treatment of the cause in this case would be the treatment of the arrest of circulation from a cause difficult of dealing with, the real treatment is to be directed to the exciting causes and to the relievable causes which the ordinary habits of life produce.

The patient should assume the recumbent position absolutely, in order to favor the circulation, nor should the affected member be elevated as is sometimes recommended, since this more or less interferes with the circulation. An even temperature should be maintained in the surroundings, and no extra heat be permitted in the part. As, however, the tendency is to a lowered temperature, the part may be wrapped in a roll of cotton batting to keep it as nearly as possible at the same temperature as the rest of the body.

Local applications are of little value. Opiate washes to allay the pain are admissible. Cotton saturated with carbolic acid solution (1:20) may be used as a detergent and antiseptic.

Internal remedies are administered with a view of maintaining the general health and relieving pain. Opium is necessary for the latter purpose, and should be administered freely as demanded, its con-

stipative tendencies being guarded against by laxatives. Diuretics, as acetate or citrate of potash, should be given until the high color of the urine disappears. Tonics are obviously demanded when the appetite disappears, but should not be used in any excess.

After the line of demarcation becomes pronounced amputation is necessary, but the ultimate result is usually fatal, because of the condition of the blood-vessels, leading to a recurrence of the condition.

3. GANGRENE FROM EMBOLISM OR THROMBOSIS.

PROFESSOR THEODOR BILLROTH.

The *local* treatment of gangrene has two chief objects: 1. To promote detachment of the gangrenous parts by exciting active suppuration, which is accompanied by arrest of the gangrene. 2. To prevent the gangrenous part decomposing, and thus acting injuriously on the patient, and infecting the chamber.

For the first indication, cataplasms were formerly employed, but their efficacy is questionable. BILLROTH prefers to cover the gangrenous parts and the borders of the healthy tissue with compresses or charpie soaked in *chlorine water*, which also diminishes the bad smell. Other substances which may be used are creosote water, dilute carbolic acid, dilute purified pyroligneous acid, very strong alcohol, spirits of camphor, or oil of turpentine. *Pulverized charcoal* absorbs the gases from the decomposing substances, but as it soils the parts it is perhaps too little used. A very serviceable remedy is prepared as follows:

166. R.	Aluminis,	3 v	
	Plumbi acetatis,	3 i	
	Aque,	f. 3 xiiij.	M.

For a lotion; to be freely applied several times daily.

Permanganate of potash has proved of little service in BILLROTH'S experience. Solutions of carbolic acid in oil (say ʒij to f. ʒxij), praised by some, cannot be used without incurring some danger of poisoning (manifested by an olive-green color of the urine). A mixture of *coal-tar and plaster* is serviceable, but must be applied several times daily.

As soon as the gangrenous part is somewhat detached, the shreds should be removed with the scissors, without cutting into the healthy parts.

The *internal* treatment of gangrene should be strengthening and even stimulant; nourishing food, quinine, acids, and occasionally a few doses of camphor are proper. Severe pain must be met with opiates. In the forms of gangrene known as *raphania* and *ergotism*, emetics, quinine and carbonate of ammonia are chiefly recommended.

MR. T. HOLMES.

If the gangrene does not spread rapidly and is not accompanied by severe constitutional symptoms, this author believes the expectant treatment may succeed in preserving a part or the whole of the limb. It has also been found that in the gangrene resulting from heat or cold—burns and frost bite—amputation rarely succeeds. So in gangrene from embolism, the associated heart disease renders an operation questionable.

If the surgeon has decided to save the limb, the first indication is to wrap it up as completely as possible in some application which will deodorize the dead parts, and stimulate the living ones to cast them off. For the latter purpose uniform gentle heat is very desirable, and the two indications may be combined by a charcoal poultice (p. 71), or a solution of carbolic acid or creosote may be applied to the sloughing part, and the whole wrapped up in a thick layer of cotton-wool. The balsam of Peru, or the tinct. benzoin comp. may be formed into a poultice. An old and very useful application at St. George's Hospital is the following:

167. R. Ung. elemi,
Ung. sambuci.
Bals. copaibæ,

℥b. j
℥ iij
℥ iij.

Melt together the ointments, and after they have been removed from the fire, and before they cool, add the copaiba.

The general indications are to clear the alimentary canal so that the patient can be nourished by concentrated food and stimulants, and to give opium freely to induce sleep. When opiates disagree, they must not be continued, but chloral in full doses, ℥j-iss, substituted, or cannabis indica, gr. j-ij of the extract, or ℥x-xx of the tincture. Equal caution must be exercised in the use of stimulants, that they be not carried to excess.

Dr. BROWN (*vide supra*) states his belief that in cases of thrombosis of a main artery, when it is desirable to establish collateral circulation promptly, the most effectual means at hand are nitroglycerine, strychnine, iron and strophanthus. Where septic embol-

ism or thrombosis exists, carbonate of ammonia has proved valuable in his experience.

NOTES ON REMEDIES.

Ammonii Carbonas is stated by Dr. BROWN to be of value in the treatment of gangrene from septic embolism.

Ammonii Murias. Dr. CHARLES GRU claims much success in the treatment of senile gangrene by immersing the limb in a foot-bath containing about half a pound, 250 grammes, of muriate of ammonia, and retaining it there several hours. Fomentations of the solution are constantly applied after the bath. (*Medical and Surgical Reporter*, October, 1867.)

Aqua Picis was extensively used by the Confederate surgeons during the war, with very excellent results. They claim that by its free use as a local disinfectant, the powerful caustics often recommended were not needed. Prof. L. A. DUGAS, of Georgia, introduced it.

Baptisia Tinctoria. A decoction of the wild indigo, 5j to aquæ Oj, in dose of f.ʒss every four or eight hours, has been asserted to be extremely useful in threatened or existing mortification. It is also used externally as a cataplasm.

Brominium is one of the most efficient agents in hospital gangrene. (F. 165.)

Carbo. Charcoal poultices have been recommended, but are of doubtful efficacy (p. 204).

Carbolicum Acidum, applied pure to the gangrenous surface, is a very effectual caustic.

Chlorinium is of great value as a detergent and disinfectant; it is used in the form of chlorine water.

Chromicum Acidum, in the strength of 100 grains to the ounce of water, has been recommended as a local escharotic in hospital gangrene.

Ferri Persulphas is an excellent remedy for local use.

Hydrargyri Nitratis Liquor. The favorite remedy for hospital gangrene with Prof. S. D. GROSS has always been the acid nitrate of mercury, freely diluted with water, and applied with a soft mop.

Iodinium. In *chronic gangrene*, the best local remedies are the dilute tincture of iodine, brushed very thoroughly twice a day over the whole of the affected surface, and the use of the bandage applied with moderate force, and kept constantly wet with a solution of opium and acetate of lead, or of muriate of ammonia. (GROSS.)

Lacticum Acidum has been recommended by Professor SAMUEL JACKSON, of Philadelphia. Buttermilk has been very useful as a wash.

Nitricum Acidum has been employed as a cauterant. It is needlessly severe.

Opium. As remarked by Professor GROSS, the great constitutional remedy in hospital gangrene is opium in some form. It should be given in large doses in union with a diaphoretic (ipecacuanha).

Oxygen. In the Parisian hospitals benefit has been reported by maintaining the limb in an atmosphere of oxygen. A caoutchouc bag is fastened around the limb, and then, through a stop-cock, filled with the gas.

Potassii Permanganas. This substance was employed in hospital gangrene, both internally and externally, by Dr. HINKLE, of Penna., with excellent effect. He gave by the mouth grs. j-ij, in solution, and externally used a concentrated solution as an escharotic, applying it thoroughly after the part had been well cleansed, and using as a dressing lint soaked in a weaker solution.

Saccharum. Powdered white sugar dusted upon the raw surface was found by Dr. JOHN PACKARD, of Philadelphia, to be extremely useful.

Salicylicum Acidum has been employed, but it is inferior to carbolic acid.

Terebinthinæ Oleum. Dr. R. BARTHOLOW has pointed out that turpentine is one of the most efficacious agents in hospital gangrene. The mortified parts are first removed with the scissors, and the remedy is then applied directly to the affected surface, by means of a piece of cotton cloth saturated with it. Fetor is removed, and sloughing arrested, and but little pain attends the application. He also recommends its internal use, gtt. x every three hours.

Zinci Sulphas is recommended as a disinfectant of gangrenous tissue and for its stimulant effects in the neighboring unaffected parts, inducing reactive and reparative processes.

GLANDERS (FARCY.)

MR. T. HOLMES.

This surgeon recommends that if any one handling a horse supposed to be glandered, gets any of the matter into a crack in the skin or on the naked hand, the same prompt and decisive measures must be adopted as in serpent bites or those of rabid animals. When the disease breaks out, the indications are, first, to disinfect and deodorize the discharge; and, secondly, to support the patient through the fever. For the former purpose the following *creosote lotion* may be used:

168. R. Creosoti,
Acidi acetici,
Aquæ,

℥xxiv
℥xlviij
f. 3vj.

M.

Turpentine embrocations are also valuable. The second indication is to be carried out by free and early incisions, and by the judicious use of stimulants and tonics.

MR. ERASMUS WILSON, OF LONDON.

For the eruption accompanying gianders, this author recommends :

169. R.	Argenti nitratis,	gr. xx	
	Etheris nitrici,	f. $\frac{3}{4}$ j.	M.
Apply locally.			

When the nostrils are affected, the following may be used :

170. R.	Zinci chloridi,	gr. ii-vj	
	Aquæ,	f. $\frac{3}{4}$ j.	M.
For nasal injection. Use night and morning, taking care that none of it is swallowed.			

PHAGEDÆNA.

DR. JOHN H. BRINTON, OF PHILADELPHIA.

As an application in phagedæna this surgeon places great reliance on *bromine*. Having scraped away the slough with a wooden spatula, he applies the following to the disintegrated surface :

171. R.	Brominii,	f. $\frac{3}{4}$ j	
	Potassii bromidi,	gr. xxx	
	Aquæ,	f. $\frac{3}{4}$ ij.	M.
Apply thoroughly to the part.			

After the application (done under ether) place cloths dipped in olive oil upon the cauterized surface; remove these a few hours later, and keep flaxseed poultices on the part until the slough separates, which is usually within two or three days. Should the succeeding granulations be weak and feeble they should be dressed with—

172. R.	Iodoformi,	gr. xx	
	Cerati simplicis,	$\frac{3}{4}$ j.	M.

If the surface turns gray, brush it very lightly with solid nitrate of silver. Internally, some preparation of iron, the tincture of the chloride or the potassio-tartrate (gr. xv-xxx), is required. (*Medical and Surgical Reporter*, December, 1873.)

DR. F. F. MAURY, OF PHILADELPHIA.

This surgeon (*Medical and Surgical Reporter*, June 1st, 1870,) recommends as the caustic, mono-hydrated sulphuric or nitric acid. *Carbo-sulphuric paste* is also good.

173. R. Acidi sulphurici,
 Carbonis ligni,

āā ʒ ss.

The parts should be cauterized boldly and thoroughly, and *early*. It should be repeated every two or three days, until the disease is checked. As a deodorizer and detergent, use water very freely, the permanganate of potassium and Labarraque's solution. Oakum is excellent to catch and absorb the discharges.

Internally, the potassio-tartrate of iron, gr. xx-1, and quinine, gr. vj, should be given daily. Under no circumstances should any form of mercury be administered. The utmost cleanliness is indispensable.

DR. ROBERTS BARTHOLOW, OF PHILADELPHIA.

In sloughing phagedæna, the *iodide of iron* is frequently prescribed where the accident occurs in debilitated constitutions. Some authorities prefer the *tartrate* or *potassio-tartrate* under these circumstances, but the iodide acts with more promptness and vigor.

As an escharotic, probably none is more desirable than *nitric acid*. A glass rod or bit of pine is dipped into the acid and applied, care being taken to penetrate to all the sinuosities of the sore. A water or spirit dressing, or dilute tincture of benzoin, may then be applied.

DR. D. B. SIMMONS, OF JAPAN.

After failing with the standard treatments, this surgeon obtained excellent results by the continuous immersion of the diseased parts in *hot or warm water*. (See pp. 51, 111.) A hot sitz-bath may be used continuously for twenty-four to thirty-six hours; or every alternate hour, an iodoform dressing being applied in the meantime. In the interval, iodoform powder may be freely sprinkled over the part. The water promptly relieves the burning and smarting pain. (*The Medical Record*, September, 1875.)

The value of this method, known as HEBRA'S bath cure, cannot be overestimated. The editor (*Medical News*, 1888,) would recommend it in cases where all the standard local applications have failed, and would urge that its use be persisted in for at least five or six days before it be forsaken. The bath should be of the body tem-

perature, and the patient may sit in it on a sponge cushion for from three to ten hours daily.

MR. T. HOLMES.

This surgeon points out that phagedæna differs from hospital gangrene in that little or no constitutional fever accompanies it, and that it involves little danger of life. The treatment, he thinks, should be mainly local. Energetic caustics, especially fuming nitric acid, should be applied to the surface of the ulcer to prevent it from spreading, followed by detergent and stimulating applications. *Opium*, said by some to exert a specific effect in phagedæna, has not merited this praise in Mr. HOLMES' hands, though it is useful to allay irritation and procure sleep. The bowels should be evacuated, and stimulants with ammonia, quinine, and nourishing food are indicated.

PROF. PROFETA, OF PALERMO.

174. R. Pepsini,
Acidi lactici,
Aquæ,

℥^{ss}
℥ij
f. ℥ iij. M.

Use as a lotion to the ulcerated surface.

For further regarding phagedæna, see Phagedænic Ulcers and Chancres.

PYÆMIA AND SEPTICÆMIA.

While there is no longer need for considering these conditions together from a pathological point of view, they are sufficiently related to be treated under the same heading from a therapeutic standpoint. By pyæmia is meant here that condition which follows from the entrance of pyogenic organisms into the general system from some focus of suppuration, giving rise to multiple secondary points of pus formation, with their consequent symptoms. By septicæmia is meant a condition of toxæmia or general poisoning by chemical poisons arising in suppurative foci. The former is a vital, progressive, more or less general disease; the latter is a general symptom of local disease. That they operate, however, in a pernicious circle is apparent when we reflect that the more points of suppuration the more chance for septic absorption; and *vice versa*, the more marked the septic poisoning of the tissue, the less the re-

sistive power of these tissues to the encroachments of the pyogenic bacteria in the system.

Inasmuch as the most common manifestations of these allied conditions are met in obstetrical practice, the reader is referred for further consideration than is here extended the subject to that section of the volume.

The treatment of pyæmia is an exceedingly unsatisfactory chapter in surgical therapeutics, the disease usually passing on in spite of every effort to a fatal termination, and where recovery ensues the result is rather attributable to the resistive powers of the individual afflicted than to the ability of the therapeutician. While this unfortunate admission must be made, there can be no doubt that in the prevention of the affliction modern surgery has shown itself pre-eminently successful. The abolition of suppuration from wounds by antiseptic and aseptic measures and care, the thorough adoption in theory and practice of the great doctrine of cleanliness, has given life to thousands, perhaps millions, who would otherwise have succumbed, not from their wounds, but from the results of their wounds. Combined with this cleanliness in surgery, the advance in the hygiene of our hospitals and dwellings and the improvement in the general condition of our citizen patients, must be considered in the study of the elements of successful prevention.

MR. JOHN ERICHSEN.

The curative treatment of pyæmia is stated by this writer to be most unpromising. The only plan he relies upon is the stimulating and tonic one, by alcohol, ammonia, bark and beef tea. He has, however, seen recoveries effected by the administration of large doses of *quinine*, gr. v every three hours. This very decidedly checks the rigors, but does not seem to diminish the temperature or the sweats. In some cases he has administered chlorate of potash, in full doses, ʒij-iv, in the day, in addition to the quinine and wine, with benefit. If the depression is great, he administers carbonate of ammonia, gr. v-xv, well diluted, from time to time, with fluid nourishment, brandy, etc. The most complete hygienic measures must be observed.

MR. JOHN WOOD, LONDON.

This surgeon has successfully treated some cases of pyæmia by *carbolicizing* the patient—first, by keeping the body in a carbolicized

atmosphere, employing small muslin bags filled with carbolized powders placed in the bed, and keeping the bed-clothes raised by means of a cradle; and secondly, by the internal administration of sulpho-carbolate of iron. (*Medical and Surgical Reporter*, July 22d, 1871.)

DR. THOMAS H. TANNER.

Calomel and blood-letting, once frequently employed in this disease, are now regarded as of more than doubtful efficacy. The treatment should be supporting and stimulating from the outset. Great attention should be paid to the nursing and hygienic surroundings. The room should be large and well ventilated, and the most scrupulous cleanliness enforced. The body of the patient should be sponged, a part at a time, and several times a day, with a mixture of vinegar and water; his strength should be supported on alcoholic stimulants and concentrated animal food. Opium is necessary to quiet restlessness, and quinine in large doses may be administered. The following combination is valuable:

175. R. Quininae sulphatis, gr. xij-xxiv
 Acidi sulphurici aromatici, f. ℥ iss
 Tincturæ lupuli, f. ℥ vj
 Aquam, ad f. ℥ viij. M.
 One-sixth part three or four times a day.

The sulphites have been recommended. (Their efficacy is doubtful.) The mineral acids generally act well. One of them may be combined as in the above prescription. When there is exhaustion and nervous irritability, phosphoric acid combined with bark is useful.

176. R. Acidi phosphorici diluti, f. ℥ iss
 Tincturæ cinchonæ comp., f. ℥ j
 Syrupi aurantii, f. ℥ vj
 Infusi aurantii, f. ℥ viij. M.
 One-sixth part three times a day dissolved in one or two pints of lemonade or barley-water, the whole of which the patient should drink from time to time through the day.

Iron is also a remedy of great service. It may be combined with glycerine and an aromatic.

177. R. Tincturæ ferri chloridi, āā f. ℥ ss
 Glycerini, f. ℥ j
 Tincturæ cardamomi comp., ad f. ℥ viij. M.
 Aquam,
 One-eighth part every three or four hours.

The strength must be kept up by concentrated nourishment and

alcoholic stimulants, as beer, wine, and brandy. Sponging the surface of the body with vinegar and water is refreshing when there is much exhaustion.

SIR JAMES PAGET, M. D., LONDON.*

Chronic Pyæmia.—This distinguished surgeon points out the not infrequent occurrence of pyæmia in a chronic form. Its local evidences are, more often than those of acute pyæmia, seated exclusively or chiefly in different parts of the same tissues; they are more frequent in the trunk and limbs than in internal organs; and when seated in the veins, are mostly found toward the close of the disease.

The prognosis is usually favorable. The slower the pulse and breathing, and the less the sweating, the greater the probabilities of recovery.

The usual treatment should be with good, patient nursing, a moderate use of stimulants, and an abundance of fresh air.

Internally one may prescribe:

178. R. *Liquoris potassæ*,
This amount in water thrice daily.

f. 3j.

The curative influence of *liquor potassæ* in some cases seems clearly proved. It appears to exert a positive and almost specific influence on certain morbid deposits, as deep-seated inflammatory infiltrations.

In every form of *septicæmia*, as well as pyæmia, it is a primary indication to cleanse and disinfect the original focus. This must be accomplished by the various antiseptic agents, perhaps peroxide of hydrogen affording a more ready and efficient means than any other. This accomplished, the effects of the septic poisons, as well as the influence of the micro-organisms responsible for them, are to be counteracted by various internal antiseptic agents, and the general condition supported and stimulated. Alcohol is of prime importance in both these directions, apparently possessing antagonistic influence to the poisons and at the same time exerting a supportive and stimulative effect on the general system. In order to do good, the alcoholics are to be given in full doses, brandy, sherry or any good wine or liquor being given freely.

VON JAKSCH (*Wien. Med. Presse*, 1888) advises in conjunction with the use of alcoholics the employment of salicylate of sodium, giving gr. vii-x hourly until the temperature falls to normal or nearly normal, and after that at less frequent intervals.

* *Clinical Lectures and Essays*, 1875.

DR. ALONZO CLARK, OF NEW YORK.

In that form of septic blood-poisoning which follows puerperal lesions, as well as in others, this author recommends *opium* in large doses, frequently repeated and kept up for a long time. The bowels of a patient can be kept unmoved for two or three weeks, his respiration may be reduced to twelve or fourteen in a minute, and, in fact, he may be kept under the fullest influence of the drug for a long time. In order to carry out this treatment, it is necessary that the physician remain with his patient, only being relieved by another physician, constantly. Besides being used in this way, opium is also used against the profuse diarrhœa in pyæmia, and as a narcotic against the restlessness of the patient.

Of remedies which directly oppose the toxic condition of the blood, BILLROTH has seen no effect from the mineral acids, the sulphites and chlorine water. Nor has the administration of purgatives or emetics proved of avail. When the skin is dry, we can occasionally do good by inducing profuse perspiration. This may be done by a warm bath, lasting for an hour, and then wrapping in blankets. He has seen patients so low with septicæmia that they were pronounced incurable, saved by this remedy. Copious diuresis does not seem much to affect the general condition.

F. FORCHEIMER, M. D., OF CINCINNATI.

This writer observes (*The Clinic*, February 24, 1877,) that the method of treatment by stimulation is especially valuable in acute, foudroyante cases of septicæmia. Here it is our duty to keep the patient alive until the shock given to the system by the introduction of so much virulent material into the blood may have passed over. In these cases this method is the only one that promises any hope for success. In order to insure methodical application of the various remedies, it is well to give the patient something, say every quarter of an hour or ten minutes. Thus, we begin by giving a dose of brandy; at the end of a quarter of an hour, the patient receives a liberal quantity of beef tea; at the end of half an hour, we give a few grains of quinine; a quarter of an hour from this time he receives milk, or punch, wine whey, or whatever we wish to give; and then we begin with brandy again, and the next hour have such changes made as may be desirable, always having the remedies given at a fixed interval. In this way we are always sure that our patient receives enough, and we can, without skilled nurses, rely

upon our treatment being carried out. If we want to add to the stimulating effects of alcohol the antipyretic, we simply increase the dose, and we, as a rule, need fear no bad results from the administration of this remedy, as septicæmic patients seem to be able to bear great quantities without bad effects.

NOTES ON REMEDIES.

Alcohol. The demand for alcohol as food and as an aid to assimilation is very great in this disease. Recently Dr. THEODORE CLEMENS, of Frankfurt-on-the-Main, has reported eight cases of severe type, which recovered under the administration of good red wine in as large amounts as they would drink.

Antiseptics. This entire class of remedies finds field for action in the treatment of these affections, first in the sterilization of the primary suppurative focus, and again internally, those which are suited for such form of administration. Minute doses of the mercurial salts, of carbolic acid, the salicylates, borates, and such substances as thymol, eucalyptol, etc., are all of undoubted value as internal medicaments. Externally such measures as have been described under the treatment of wounds and inflammation are to be prosecuted.

Aqua Calcis, with milk, is a valuable dietetic auxiliary. Dr. JOSEPH BELL, of Edinburgh, has reported three recoveries in which, with hardly any medicine, he gave milk with lime-water, eggs and beef tea, at short intervals.

Carbolicum Acidum has been experimented with in pyæmia, but the results are unsatisfactory.

Ferri Chloridi Tinctura has been administered in large doses, with little benefit.

Hypophosphites of sodium, potassium and ammonium. These have yielded good results in some cases, and deserve trial.

Hyposulphites. The sulphites and bisulphites of the alkaline metals were largely used during our war, but the general experience was that they are of little use.

Opium in some one of its forms is held by some authorities as possessing special influence against septic poisoning, although this does not hold good generally.

Quinina Sulphas. M. VERNEUIL, of Paris, as well as many other surgeons, speaks emphatically of the value of quinine, given in large doses. To prevent the rigors, Dr. GROSS prescribes :

179. R.	Quinina sulphatis,	gr. x.	
	Morphina sulphatis,	gr. ss.	M.

This amount every four hour or six hours. No benefit, he says, can accrue from smaller doses.

Dr. FORDYCE BARKER gives gr. x-xx twice daily, until constitutional effects are produced. He emphatically claims for it the power of preventing the formation of pyogenic deposits.

Terebinthine Oleum. Dr. J. S. HOLDEN reports the recovery of a severe case of pyæmia under the use of f.ʒss doses of this agent. (*Lancet*, Jan., 1874.) It probably acts as a vaso-motor stimulant.

Veratrum Viride. In the early stages of septicæmia, Dr. FORDYCE BARKER strongly commends this sedative. He usually commences by giving five drops of the tincture of veratrum viride every hour. If a decided impression be not made on the pulse after two or three doses, he increases each dose by one drop until a positive effect is gained, and thus brings down the pulse from 120, 130 or 140 to below 80. The influence of the veratrum viride should be steadily kept up until two or three days after all constitutional disturbance has subsided. When the pulse is once reduced by the veratrum viride, usually two, three or four drops every hour will be sufficient.

SURGICAL OR TRAUMATIC FEVER.

Traumatic fever is not to be mistaken for the affections treated of in the last section, inasmuch as it is a manifestation too early to admit of its origin from an infection. It is rather the excess of reaction from traumatic or surgical shock, and probably is to a certain extent at least a nervous phenomenon. There are doubtless other elements entering into the causation of the fever immediately after an operation or injury, and these may operate to continue the symptom until it sometimes merges into that which is due to suppuration, but primarily traumatic fever is not a pyæmic or septicæmic condition.

PROF. THEODOR BILLROTH.

In simple traumatic fever, which does not pass the usual limits, we need generally use nothing but cooling drinks, fever diet, and a little morphine at night, to secure good rest.

If the fever lasts longer and assumes a peculiar character, we may resort to febrifuges. *Digitalis* is of little use, on account of its uncertain action. *Veratrum* reduces the temperature, but appears to do little good in toxic traumatic fevers. *Aconite* was formerly highly recommended, but Dr. BILLROTH has seen no good from it.

Quinine he has found the most efficacious, especially in intermittent suppurative (hectic) fever, particularly in combination with opium. He gives gr. vj-xvj in the course of the afternoon, followed at night by gr. j of opium.

PROF. D. HAYES AGNEW, OF PHILADELPHIA.

In the surgical fever of vigorous patients, where there is no gastro-intestinal irritation, the following antimonial is applicable :

- | | | | |
|---------|----------------------------------|----------|----|
| 180. R. | Antimonii et potassii tartratis, | gr. j | |
| | Liquoris potassii citratis, | f. ℥ vj | |
| | Liquoris morphinæ sulphatis, | f. ℥ vj. | M. |
- A dessertspoonful every two hours.

After the bowels have been freely evacuated, and the circulation has become quiet and the temperature fallen, an opiate may be given ; but if it is desirable to exhibit the opium before the pyrexia has abated, it should be given in combination with such articles as tend to increase the activity of the kidneys and skin. The following formulæ embody the best combinations of the kinds in Dr. A's. experience :

- | | | | |
|---------|----------------------------------|-------------|----|
| 181. R. | Antimonii et potassii tartratis, | gr. ½ | |
| | Spiritus ætheris nitrosi, | f. ℥ iij | |
| | Liquoris morphinæ sulphatis, | | |
| | Aquæ aurantii florum, | āā f. ℥ ss. | M. |
- A dessertspoonful in a half tumbler of water, every two hours.

- | | | | |
|---------|----------------------------|----------|----|
| 182. R. | Morphinæ sulphatis, | gr. j | |
| | Misturæ potassii citratis, | f. ℥ vss | |
| | Curaçoe, | f. ℥ ss. | M. |
- A dessertspoonful every two hours.

MR. T. HOLMES.

Some amount of traumatic fever generally, but by no means always, occurs after grave operations and severe injuries, and its persistence beyond the usual period is an evil omen.

Beyond sedulous attention to the general state of the patient, cautious inspection of the part, to see that no discharges are confined in the wound, and cleanly and skillful dressing, there is no particular treatment for traumatic fever. Attention must rather be directed to the care of the injury from which the fever springs. Everything which makes the wound do well, that is, which favors union with the least possible amount of suppuration, and as perfect immunity from putrefaction as possible, will diminish to that extent the liability to septic fever, and its severity when it arises.

TETANUS.

This disease has been studied very fully by the bacteriologists of to-day, and its phenomena referred by them to a form of bacillus. It is generally believed that this micro-organism is to be found in the patient only in the immediate neighborhood of the infected wound, and that it there develops certain organic poisons of an alkaloidal nature, which by their action on the nervous system, particularly the spinal cord, produce the peculiar symptoms of the disease. The primary indications of the disease are the removal of the focus in which these tetanus bacilli are actively producing these poisons, the destruction of all germs which may be present in and about the wound, and the neutralization of the effects of the poisons on the nervous and other functions of the body. The first of these may be attempted by amputation of the wounded part, excision of the wound, thorough cauterization, opening of the wound (which is almost invariably a punctured and deep one, the tetanus bacilli not being favored in their growth by free accession of air), by free incision and thorough sterilization of the parts. The second indication is met first by the administration of full doses of chloral in order to blunt the nervous system in its recognition of various external and afferent impulses, and the use of the bromides to decrease the motor explosions following; second by removing all external conditions which tend to excite spinal nervous activity; third, by administration of substances intended to directly neutralize the poisons. In this last particular, advances in our therapeutic knowledge are especially demanded.

DR. A. P. BOON, ST. KITTS, W. I.

After an unusually successful experience, this writer (*Lancet*, February, 1878,) lays down these rules of treatment:

First. The room must be dark and quiet; draughts are to be carefully excluded. Too much stress cannot be placed on this; the least rush of cold air, flash of light, or even sudden noise, may bring on a spasm.

Second. Nourishment should be given freely, in a liquid form, and at frequent intervals. It should be always warm, cold drink being avoided for the same reason that cold air is excluded. Stimulants should be administered from the first, in small quantities, say four

or six ounces of brandy in the twenty-four hours, and increased if the pulse indicates it.

Third. Never give purgatives. It is obvious that when our object is to keep the nervous system quiet, we should avoid purgatives of all kinds.

Fourth. Hydrate of chloral, together with extract of *cannabis indica*, is to be given in rapidly-increasing doses, until the frequency and severity of the spasms are controlled. He generally commences with thirty grains of chloral in an ounce of water, and two grains of the extract of Indian hemp in the form of pill, every three or four hours, for an adult, and increases the former by fifteen grains and the latter by two grains, until the desired effect is produced, when the spasms will be few and far between, the abdominal muscles almost normally flaccid, and the mouth opened to at least an inch. The patient is then in a state of stupor, from which he can be roused to take nourishment. He finds that sixty grains of chloral and four grains of the extract is a full dose in fairly severe cases.

DR. JOHN IMRAY, DOMINICA, W. I.

This writer states, in the *Medical Times and Gazette*, May, 1876, that in his experience, neither *opium* nor *chloral*, administered alone, seemed to check the onward course of the disease, but given together, the effect was markedly good. The doses were from ten to forty drops of tincture of opium with from fifteen to forty grains of chloral, a new dose to be given whenever the effect of the previous one is manifestly wearing off. If there is any difficulty about the administration by the mouth, rectal injections were found to answer equally well.

PROF. E. DI RENZI, M. D.

This Italian surgeon has found no benefit from amputation of the wounded part, in acute tetanus, nor from the use of internal remedies. He found, however, by experiment, that *light* renders the tetanic contractions of animal and man more frequent and intense, while absolute *repose*, during the absence of all stimulus, retards the tetanus and renders it less fatal. Of three cases of severe tetanus he treated almost exclusively by absolute repose, two cases were cured. The patients were kept isolated in a dark room; all noise, or other stimulus or irritation, was avoided, except such as was caused by the administration of food and beverage at long intervals. In one case, death resulted, notwithstanding the administration of large doses of

hydrate of chloral and several hypodermic injections of woorara. It would appear that the chloral increases the difficulty of respiration, which is already affected by the disease.

In the actual condition of science, he believes *absolute repose* shows itself to be the principal remedy in the treatment of tetanus. The removal of stimulus should, however, be as complete as possible, and be recognized as an important accessory.

DR. W. R. JACKSON, OF MOBILE, ALA.

Dr. JACKSON (*Med. News*, 1891), in a case of tetanus in a large, well-built male negro, who had had tetanic spasms for four days before being placed under the physician's treatment, pursued the following plan with final success:

He ordered, as soon as he saw the patient, ten grains of calomel, one-third of a grain of tartar emetic and three drops of croton oil, followed by chloral and bromide of potash, of each twenty-five grains every two hours. The latter drugs were given throughout the entire course of the disease. Every third day three drops of croton oil were given, producing three or four watery evacuations in the twenty-four hours. The wound, which had been caused by a nail upon which the man had trod, had healed over; and Dr. JACKSON made a crucial incision in the scar, producing a venous hemorrhage, and then dressed it with oil of turpentine. Whiskey and digitalis in full doses were given when there were signs of cardiac weakness. When the temperature rose above 103° F., quinine was given. The diet was exclusively liquid. On the twelfth day he could open his mouth. He had only two general convulsions after the bromide and chloral were given, and on the twentieth day he was out of bed.

Dr. M. W. SCOTT, of North Dakota, also testifies to the value of this use of large doses of bromide of potassium and chloral, mentioning the case of a Scotchman with idiopathic tetanus, to whom he gave every two hours 30 grains of bromide with 20 grains of chloral, the case terminating in recovery.

MAYER (*La Semaine Méd.*, 1891) gives a powder such as the following from three to six times daily to overcome the convulsions of tetanus:

183. R.	Morphinæ muriatis,	gr. $\frac{1}{6}$	
	Chloral.,	gr. xv	
	Sodii bromidi,	gr. xx.	M.

Sig.: Make into a powder which should be kept in waxed paper because of the hygroscopic character of the chloral.

IGNATIEFF reports a case (*Med. News*, 1890) in which paraldehyde was successfully used. Chloral had been employed, although not in very large doses, without avail, but the administration of the paraldehyde (both by the mouth and rectum) was followed at once by cessation of the spasms. It was given in amounts of from one to two and a half drachms daily, in divided doses.

BIDDER (*Deut. Med. Wochensch.*, 1890) used successfully, along with chloral internally, parenchymatous injections of carbolic acid into the region of the wound.

MARESTI (*Univ. Med. Mag.*, 1891) reports a case in which after large doses of chloral had proved without avail, urethan was given (gr. xxx-xlv, daily) with the result of the rapid recovery of the case.

PROF. ROBERTS BARTHOLOW, M. D., PHILADELPHIA.

This physician regards physostigma as the most valuable remedy to be employed against tetanus. All cases treated by Calabar bean are not managed with equal judgment and skill. Dr. FRASER has indicated (*The Practitioner*, Vol. I., p. 83,) the following mode of using it: Commence the treatment by subcutaneous injection; repeat such injection until the system is decidedly affected; then administer the remedy by the mouth, in a dose three times as large as is found necessary by subcutaneous injection. This plan may be safely followed, even in a child of nine years. If the administration by the mouth continues to produce remedial effects, it should be persevered with; but in severe cases, subcutaneous injection should alone be employed, and it should always be preferred when severe and continued spasms occur, when a fatal result is imminent from exhaustion, and when apnoea threatens a fatal termination. No arbitrary rules of dosage can be laid down. For an adult, gr. j of the extract by the mouth, or gr. $\frac{1}{3}$ by subcutaneous injection, will generally suffice to begin with. This should be repeated in two hours, when its effects will usually have passed off, and the succeeding doses modified according to the experience thus gained. The doses are to be continued in increasing quantities until the physiological effect, in diminishing reflex excitability, is produced, or until the sedative action of the drug on the circulation is carried to a dangerous extreme, or until constant nausea and vomiting compel a discontinuance.

WILLIAM FENWICK, M. D., GLASGOW.

184. R. Pulveris physostigmatis,
Pulveris rhei,

āā 3j. M.

Divide into twenty powders. One to be taken every four hours during the day; also an occasional dose at night, making the average quantity of fifteen grains of each in twenty-four hours.

Under the influence of this combination, Dr. F. has seen none of the depressing effects which the bean produces by itself. He reports (*Glasgow Medical Journal*, May, 1869,) the improvement under this treatment as marked.

TREATMENT BY ANTITOXIN.

TIZZONI and CATTANI experimentally proved that certain animals are more resistant than others to the tetanus virus, and that their blood is able to destroy cultures of the bacillus and also to grant immunity to other and more susceptible animals. Susceptible animals like rabbits may be rendered immune to the attacks of tetanus by first inoculating them with a weak culture of the bacillus, and thereafter their blood serum is quite powerful against healthy cultures, and has the property of giving immunity readily. A substance of albuminoid nature was prepared by these investigators from the blood serum of such artificially protected animals, and called antitoxin. It is able to destroy pure cultures of the tetanus bacillus, and when injected into animals confers immunity to them against further inoculations of the micro-organisms. Moreover, in animals already exhibiting the active symptoms of the disease, if inoculated with this substance, these symptoms decrease and recovery ensues.

Recently FINOTTI (*Wien. Klin. Wochensch.*, 1892; *Internat. Med. Mag.*, 1892) has reported a case of traumatic tetanus in which antitoxin was employed, recovery ensuing. At first, for several days no result was obtained; then the temperature fell slightly. Then the patient became worse and larger doses of the antitoxin were used, followed by another fall in temperature and general improvement. On the fourteenth day of injections with this substance (after 28 injections) the symptoms had so far abated that the injections were stopped, and in several weeks more the patient was discharged.

This was the fourth case of recovery from tetanus treated by this substance, and it is believed that in the future it will become a recognized and valued therapeutic agent.

DR. EDWARD VANDEPOEL, OF NEW YORK.

This physician records (*Medical and Surgical Reporter*, May 7th, 1870) twelve cases of tetanus, eleven of which recovered, under the use of *strychnine*, as originally suggested by Prof. VALENTINE MOTT, of New York city.

The dose, in all cases, should be from one-sixteenth to one-twelfth of a grain of strychnia every two hours, until involuntary twitching of the muscles of the extremities takes place, when the masseters will relax. The same dose should then be continued, but given only once in six hours, to maintain the advantage until, by the frequent administration of concentrated nourishment, convalescence commences. In the one case lost, the tetanic symptoms abated, but the attending physician injudiciously suspended the remedy, and they re-commenced, and the patient died of exhaustion.

NOTES ON REMEDIES.

Aconitum, in large doses, has been employed by a number of practitioners, and deserves further trial. There seems to be great tolerance of the drug in this disease. It acts by diminishing the irritability of that portion of the nervous centre which controls reflex muscular action.

Æther has been found to be very useful in arresting tetanic symptoms in the wounded. Cases, both of idiopathic and traumatic tetanus, cured by inhalation of ether, have been reported.

Alcohol. Stimulants, first proposed by Dr. RUSH, in this disease, are now rarely trusted to alone. Large doses of wine, brandy, and porter, have been given with success, in a number of reported cases.

Allium has been administered internally, in this disease, and by friction along the spine and limbs, with alleged success.

Antimonii et Potassii Tartras has, it is said, proved effectual in nauseant and emetic doses.

Atropia has been given hypodermically. Its effects are probably the same as belladonna (which see.)

Belladonna. The claims of this drug have been strongly urged by Dr. HENRY FITZGIBBON, surgeon to the Dublin City Hospital. (*Dublin Journal of Medical Science*, March, 1877.) He gives gr. $\frac{1}{4}$ of the extract, every two to four hours. The local application of aconite and belladonna to the wound, he also considers important as diminishing the irritability of the wounded nerve. Warm baths and laxative medicines also form part of his treatment. He also uses tobacco stupes and chloroform, and considers it would be perfectly rational to combine the internal administration of belladonna with subcutaneous injections

of curarine or nicotine ; but, as the latter has, at first, a tendency to produce an excited and irritated condition of the cord, before it causes any paralysis of the muscular system, he should be disposed to employ curarine in preference.

Brominium. See Potassii Bromidum.

Cannabis Indica has been largely employed, but with very diverse results. It has been given in the form of the extract (gr. iij), or of the tincture (℥xxx), repeated every half hour, hour, or two hours, the object being to produce and maintain narcotism. Dr. JOHN C. LUCAS (*Medical Times and Gazette*, June, 1880,) advocates smoking the leaves, mixed with three or four times their quantity of tobacco. At the first indication of the spasm, the pipe is used, and will generally avert it.

Chloral. This substance has been highly commended in tetanus. According to Dr. CHOPARD, (*Thèse de Paris*, 1876,) it should be given in full doses, rapidly increased. ʒss to ʒj, daily, may be required. Administration by the mouth is preferable. Five or ten drops of a solution of bicarbonate of soda (gr. l. to aquæ ʒj) will counteract the irritating effect of the chloral, and should be added to each dose. Often, however, administration by enema is necessary. These are best prepared by emulsifying the chloral solution with yolk of egg and adding a wine-glass of milk ; gr. xl–lx may be given at once in this manner. It is absolutely necessary to diminish the use of chloral gradually, or the convulsions will return. Dr. IMRAY combines it with opium. (p. 218.) In *Schmidt's Jahrbücher*, June, 1879, Dr. KNECHT, after a close criticism of all recent means, gives the decided preference to chloral in this disease.

Chloroformum. The inhalation of chloroform in small and frequently-repeated doses, with a large admixture of air, relieves the muscular spasms when it fails to produce a lasting benefit. By some recent writers it is claimed to be the agent which has cured the most cases. Chloroform frictions are also recommended.

Colchicum has been used, but not with very satisfactory results.

Conium is regarded by Dr. HARLEY as the natural antagonist of this disease, but, to be effectual, large doses of the succus must be given. If the patient cannot swallow, from f.ʒvj–xij of the succus, warmed to the temperature of the body, should be injected into the bowels, and repeated every two, three or four hours, according to the condition of the muscles.

Curara, see Woorara.

Lobelia Inflata is largely used by veterinary surgeons in tetanus of the lower animals. Several successful cases have also been reported in the human subject. Three of these may be found in the *Medical and*

Surgical Reporter, December 3d, 1870, by Dr. GEORGE O. BUTLER, of Ohio. His formula was :

185. R. Fol. lobeliæ inflatæ, ℥ ij
 Aquæ bullientis, f. ℥ xij. M.

Make an infusion. A teaspoonful to be given every half hour, or sufficiently often to maintain a constant diaphoresis.

When the jaws are set, enemata of this infusion may be given every fifteen minutes until emesis is produced, after which it may be administered as above, by the mouth.

Morphina has been frequently used hypodermically in this disease. See Hypodermic Injections below.

Nicotina has been given hypodermically. Internally, nicotine, in doses of gtt. ss–ijss in sherry and water, several times a day, has been employed with success. The alkaloid has the effect of relaxing the muscles, stopping the delirium and producing profuse sweating, which exhales a strong odor of snuff. So powerful a poison must be given with caution.

Nitrite of Amyl, by inhalation, has been exhibited with success in traumatic tetanus. Its action is similar, but less in degree, to that of glonoin or nitro-glycerine (q. v.).

Nitro-glycerine has been employed, but must be given cautiously. It is an exceedingly powerful stimulant of the vascular system. The proper method of prescribing it is to dissolve one drop in one hundred drops of alcohol. Ten drops of this ($\frac{1}{10}$ drop of the nitro-glycerine) is a dose. The mixture is non-explosive. The dose has an immediate effect on being placed on the tongue. Its actual value in this, as in other diseases, is not yet ascertained.

Nux Vomica. See Strychnia.

Oleum Terebinthinæ, internally, or by enema, sometimes exerts a beneficial influence. It may be used as an adjunct to other remedies.

Opium has been given in large doses, but is inferior, in this disease, to aconite, belladonna, chloroform, or physostigma. Dr. RUPPNER recommends the hypodermic injection of gtt. xxv–lx, of liquor opii compositus, in the back, near the spinal column.

Paraldehyde is used in large doses ; it probably is not to be compared with chloral in the certainty of its effects, but has been used instead.

Physostigma is a remedy of much value, and one of which there is great tolerance in this disease. Dr. FRASER, of Edinburgh, is in favor of subcutaneous injections, especially in severe cases, (*Practitioner*, August, 1868,) but Dr. EBEN WATSON, who has had great experience in its use, has failed to obtain, in this way, any very decided effect. He prefers to prescribe the alcoholic extract in solution, as a weak tincture ; but

should the stomach reject this, he gives a double dose in a starch-water enema. (*Practitioner*, April, 1870.) He agrees with Dr. FRASER in the necessity of giving it in large and repeated doses, the sole limit being the subsidence of the tetanic spasms, or the development of the poisonous effects of the drug to a dangerous degree. The strength of the patient must also be well supported by fluid nourishment and stimulants. Physostigma may fail, however, even when its full physiological effects have been produced. (F. 184.)

Potassii Bromidum, in doses of gr. xx-xl, every two or three hours, has been given in a number of reported cases of idiomatic and traumatic tetanus, with markedly favorable effects. It is particularly to be used in combination with chloral.

Quininæ Sulphas has been used, but is of doubtful power.

Strychnina, in doses of gr. $\frac{1}{8}$ - $\frac{1}{2}$, every two hours, has been employed with benefit.

Tabacum. Enemata have been employed with success in the hands of some practitioners, but have failed entirely in others. Their strength should never exceed gr. xxx of the leaves in Oss of water, and ammonia, brandy and other stimulants must be given, to prevent too great depression. The topical application of tobacco has been recommended in traumatic tetanus, a strong infusion of Cavendish tobacco being applied to the wound and surrounding parts, previously blistered; in idiopathic tetanus, it being applied to a blistered surface over the spine. See, also, *Nicotina*.

Urethan has been used with some success in doses of gr. x-xv every three or four hours.

Woorara, in large doses, hypodermically, gr. $\frac{1}{30}$ - $\frac{1}{30}$ - $\frac{1}{2}$, is successful in the hands of SPENCER WELLS and others. It has not, however, justified the confident hopes that were at first entertained of its powers in tetanus.

Cathartics are useful in most cases.

EXTERNAL REMEDIES.

Acidum Carbolicum has been used in parenchymatous injections about the original wound, in order to destroy the tetanus bacilli present in those parts. Any of the strong caustics may be used for the same purpose, but must be used thoroughly.

Actual Cauteary, applied to the wound, in traumatic tetanus, was proposed by LARREY.

Antitoxin (see above, p. 221).

Baths. Warm baths, 97°-100° F., of three to four hours' duration, repeated daily, have been advised.

Blood-letting. When there exists a disposition to isochronic inflammation, and the patient is plethoric, and the pulse full, venesection at the onset has been advised.

Cantharis. Prof. STILLE states that in tetanus, "even when of traumatic origin, blistering on either side of the spinous processes and throughout the entire length of the spine, is an important, if not an essential element of treatment. It is possible, though not certain, that the endermic use of the salts of morphia on the parts thus denuded, adds greatly to the efficacy of the vesication. It were, perhaps, better to introduce the narcotic by inoculation."

Chloroformum. Chloroform frictions are said to afford relief.

Frigus. Cold affusions have proved of little value in traumatic tetanus, but of great service in the idiopathic form, particularly in warm climates. Ice in bladders, steadily applied along the whole length of the spine, has proved efficient in both the traumatic and idiopathic varieties of the disease.

Oxygen, in the form of hydrogen peroxide, sprayed or injected into the wound, is theoretically indicated, the tetanus micro-organisms flourishing badly in oxygen or in contact with the open air. Hence it is also indicated to freely incise and open all buried parts of the wound.

Potassa. Counter-irritation, by caustic potassa, over the spinal column, has repeatedly proved of service in traumatic tetanus.

VII. PRIMARY SUPPURATIVE LESIONS.

Abscesses—Bedsores—Carbuncles and Furuncles—Felon (Whitlow, Panaris)—Ulcers.

ABSCESSSES.

An abscess is a circumscribed focus of suppuration. Inasmuch as the most advanced pathology regards every suppuration as dependent upon micro-organismal cause and the result therefore of an infection, the line of treatment has become narrowed down to strictly antiseptic limits, and in its limitation has markedly gained in efficiency. It must be recalled that there are commonly spoken of two forms of abscess, a *hot* or *acute* abscess and a *cold* or *chronic* abscess, the latter being in a large proportion of cases composed, not of pus, but of liquefied, cheesy matter. Cold abscesses for the most part are of a specific, tubercular or syphilitic nature, and are necessarily more difficult to deal with than are simple acute abscesses, which tend naturally to heal promptly upon evacuation of their contents. When an abscess is formed in the depths of the tissues from the pressure of the enclosed exudate, it naturally tends in the direction of least resistance, in other words it *points* toward the surface. This last term, "*pointing*" of an abscess, is applied when the inflammation about the collection of pus has appeared upon the surface of the body, and the pus has become recognizable beneath the superficial tissues by the ordinary means of diagnosis. The indication for the treatment of such infection is the application of every measure tending to advance the process of pointing, and the evacuation of the contents of the abscess, the thorough disinfection of the walls, and the removal of all broken-down tissues which cover the wall of granulations surrounding the purulent collection, the application of pressure to bring the granulating surfaces together, the maintenance of the cleanliness of the cavity, and possibly the stimulation of the walls into activity in order to hasten tissue formation.

Cold abscesses being generally dependent upon a process of systemic character, besides the local measures which have been indicated, there must be due attention given to the amelioration of the

constitutional affection. When such a focus of change has once pointed and discharged—processes apt to be much more slow than in the ordinary abscess—there is added, unless antiseptics is strictly enforced, the danger of true pyogenic infection, when the character of the condition is decidedly modified, becoming more nearly like an acute process.

HOWARD MARSH, F. R. C. S., LONDON.

This writer, in the *International Encyclopædia of Surgery*, states that it may be stated as a rule that pus is to be removed as soon as it has formed, and that in *acute* abscesses this rule may be considered absolute, although in *cold* abscesses there is more question, and indeed, there are many surgeons who habitually prefer to permit spontaneous evacuation. Acute abscesses are best evacuated by direct incision. The opening should be made at the point where the pus lies nearest the surface, at the point of greatest tenderness, of redness, or where the most marked “softness” is to be felt. The knife should be clean, sharp and sterile. It should be a narrow-pointed and tapering blade so as to enter most easily. The knife being quite clean, it should be inserted as nearly at right-angles with the surface as possible, and when the pus is reached, should be withdrawn with a swift cut so as to enlarge the opening. Where important structures interfere with such a method, the skin and superficial fascia should be cut, and then a grooved director inserted and worked downward into the purulent collection. A narrow bladed dressing forceps may now be introduced, and the blades drawn apart as the instrument is withdrawn, and thus the opening be stretched to sufficient size for evacuation.

After evacuation the cavity should be washed out with some antiseptic solution; particularly is this adapted to abscesses with strong walls and small extent. Then pressure is to be applied, a bandage being used to retain the means of exerting pressure in place. Several dressings, washing out the cavity if pus collects again, are generally sufficient for ordinary abscesses.

HUBBARD (*New York Med. Jour.*, 1888,) urges early evacuation of the pus, irrigation of the cavity with a solution of bichloride of mercury (1:2000), and the application of antiseptic dressings with pressure. He believes this plan of treatment will be followed in the vast majority of cases by cure in from forty-eight to seventy-two hours.

In order to open an abscess without pain, as a rule any ordinary local anæsthetic is sufficient; where much dissection is necessary, or operation in a vital part, the patient had best be anæsthetized with one of the general anæsthetics. It has been suggested that the carbon dioxide in an ordinary soda-water bottle may be utilized to produce a local anæsthesia sufficient for the evacuation of small and superficial abscesses, merely by directing the stream from the bottle over the part.

CHAMPONNIÈRE (*Rev. Gen. de Chim. et de Therap.*, 1889,) advises that acute abscesses be freely incised, and thoroughly irrigated with a solution of bichloride (1:1000). The instruments should be sterilized and the parts washed with the following solution:

186.	R.	Glycerini,			
		Acidi carbolici,		āā	25
		Aquæ (excoctæ),			1000.
					M.

Over the place where the abscess was, a piece of rubber is to be placed and covered in with a bandage, a drainage tube having been inserted if necessary. Twenty-four hours later the wound should be re-dressed, the above solution being again used.

Other writers recommend the evacuation of abscesses by means of trocar and canula, or by the aspiration needle. Having cleared the cavity of its contents by such means, it is usually urged that antiseptic solutions be injected through the same path in order to thoroughly cleanse it. Thus, *peroxide of hydrogen* is recommended by WILE (*Four. Amer. Med. Assoc.*, 1888,) injected into an abscess after dilution with an equal quantity of water and withdrawn. This is repeated several times, and then a solution of bichloride of mercury (1:2500) is injected and withdrawn. The part is then covered with iodoform gauze and a fine antiseptic bandage. *Iodoform*, dissolved in ether, has been used the same way in VERNEUIL'S clinic. *Carbolic acid* is used by various surgeons, in a moderately weak solution. So, too, a number of other antiseptic materials have been employed by various persons with varying success. The principle of sterilizing the part is, however, to be borne out in the successful modes of treatment.

When there has been much loss of substance and the walls of the abscess do not readily come together under moderate pressure, it is proper to lay the cavity open and pack the interior with an antiseptic and stimulant gauze dressing (p. 83), in order to bring about healing from the bottom upwards.

MR. GEORGE W. CALLENDER, OF LONDON, SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

This surgeon recommends the treatment of abscesses by hyperdistension with dilute carbolic acid. The operation may be performed whilst the patient is under the influence of ether, or the integuments may be frozen by the ether-spray. The following are required: a scalpel where an incision is needed, no open sinus existing; carbolic acid lotion (one part in twenty) diluted to one in thirty by the addition of warm water before using it; a perforated elastic drainage-tube; carbolized oil (one in twelve) on lint, for dressing the wound, and gutta-percha tissue for covering this; some ordinary adhesive plaster; some tenax to receive any subsequent discharge (which, however, is very slight); an ordinary two or four-ounce syringe. When it is desirable to make continuous pressure over an abscess after opening it, a pad shaped to the needs of the case, and filled with shot, will be found useful. It acts more effectually than a sand-bag, and is easily made and adapted.

The operation is begun by cutting into the abscess (if no sinus exists), the opening made being of sufficient size to admit one of the fingers. The pus is then allowed to escape, the abscess being emptied as completely as possible. The nozzle of a syringe is next passed through the opening, and the skin is drawn closely around it by the operator with his left hand; the contents of the syringe are then passed into the abscess-sac. Care must be taken, in doing this, that no pressure is made upon the abscess-wall, or the distension of the sac will be incomplete. Either by using a syringe which throws a continuous stream, or equally well by closing the wound with a finger whilst the syringe is being re-filled by an assistant (very little fluid being lost by its re-introduction), the abscess-sac will presently distend quite to, and even beyond its original size; and, under these circumstances, the carbolized water necessarily finds its way (as a rule, which has few exceptions,) into all parts of the cavity, however irregular, and along any channels leading from it. When the abscess has been opened, the amount of injection may be roughly measured as being rather in excess of the quantity of pus let out. When distension has been effected, the fluid is allowed to escape, and if much pus be mingled with it, a second injection may be practiced. An elastic drainage-tube, its size varying with that of the abscess, is then inserted and secured, and over the end of this, and over the wound, a piece of lint, twice folded and soaked in car-

bolized oil, is laid. This is covered with a sheet of gutta-percha tissue and some tenax, and these dressings are secured with some ordinary plaster.

Subsequent treatment consists in the renewal of the dressings, which it is desirable to see to daily. The drainage tube is gradually shortened as the abscess-wall contracts, and through its canal, if there be any signs of puriform discharge, a little carbolized water may be occasionally injected.

MR. A. E. BARKER, F. R. C. S., ENGLAND.

This writer (*Brit. Med. Jour.*, 1891; *Univ. Med. Mag.*, 1891,) describes his method of dealing with psoas, iliac and other large tubercular abscesses. Thorough evacuation of these abscesses is usually difficult because the contents are not entirely liquid, that about the walls being generally solid and cheesy.

Taking a psoas abscess as an example, BARKER makes an incision at the lower part of the swelling through the sound parts. Then a hollow gouge, which is connected by a rubber tube with a three-gallon reservoir of hot boiled water (105°-110° F.) five or six feet higher than the operating table, is inserted into the bottom of the cavity, and the cheesy matter scraped and gouged loose. The stream of hot water aids to loosen the fibrous shreds, and carries out of the wound all the débris. The entire cavity is cleaned out by this means, and the walls systematically scraped so as to uncover the healthy tissue. The hot water aids in preventing hemorrhage and at the same time is an aseptic agent. The amount of water usually necessary precludes the use of any of the antiseptics for the purpose, as toxic effects would almost surely ensue. Further, the hot water prevents shock in some degree. When the water comes from the wound clear and clean, the irrigation is discontinued, and the water squeezed out of the cavity as well as possible. Then several ounces of a fresh iodoform emulsion are poured into the cavity and stitches arranged for closing the wound. Before this is done the iodoform is pressed out as well as may be done readily, and the stitches tied. No drainage apparatus is employed. A dressing of dry salicylic cotton is applied. This method is regarded by BARKER as preferable to the aspiration of the cavity and the injection of iodoform, as it gets rid of all the matter at once, and places the parts in the best possible condition for healing from the first. Iodoform is used because of its supposed action against tuberculosis, in order that if by

chance any tubercular foci be left, this antiseptic may render them innocuous.

PROF. THEODOR BILLROTH.

(*Med. News*, 1891.) The common method of treating cold abscesses by aspiration, followed by injection of ethereal solutions of iodoform, is often productive of a great deal of pain. In consequence of this, BILLROTH employs the following treatment: The abscess is thoroughly opened across its greatest diameter, and its walls are rubbed with a tampon of iodoform gauze. After this the cavity is washed out with a solution of corrosive sublimate (1:3,000), and finally after the edges of the wound have been sutured a mixture of glycerine and iodoform is injected through a drainage-tube and permitted to remain in contact with the diseased surfaces. An ordinary antiseptic dressing is applied over the wound. The iodoform mixture is made up in the following proportions:

187.	R.	Iodoform,	10	
		Glycerine,	100.	M.

BURNS (*Arch. f. Klin. Chirurg.*, 1890) also highly commends the use of iodoform in the treatment of cold abscesses. He prefers olive oil as a vehicle to either ether or glycerine, making a ten or twenty per cent. mixture of the iodoform and oil. He believes in the strong anti-tubercular value of iodoform, and states that he has absolutely cured a number of these lesions without recidivity for several years at least. He cautions that the remedy must be persisted in, as it is rare that any benefit can be recognized before the lapse of at least one month, and cure is very rare before three or four months.

Constitutional treatment directed against the general tubercular taint must not be overlooked, and the health of the patient maintained at its highest condition by nutrients if a favorable result is to be confidently expected.

NOTES ON REMEDIES.

Belladonna, both externally and internally, is often effectual in dissipating threatened abscesses. Mr. CHRISTOPHER HEATH has given cases in which it obviously prevented the formation of abscesses in the neck and elsewhere.

Carbolicum Acidum is used in solution of.gr. x-xx to aqua f. ʒj, as an injection

after evacuation. Also used by Mr. CALLENDER for hyper-distension. (See above.)

Hydrargyrum. Various preparations of mercury are used by plaster and inunction to dispel and prevent abscess. Of these the *oleate* is efficient and neat.

The bichloride is most efficient as an antiseptic for washing out and sterilizing the cavity of an abscess when it has been evacuated. The solution must not be permitted to remain, for fear of poisoning after absorption.

Iodinium in solution, injected into the cavities of large abscesses after evacuation, often proves very serviceable.

Iodoform has been proposed and is highly esteemed among antiseptics, as possessing influence against the tubercular process. It is therefore employed frequently in the treatment of cold abscesses.

Phosphates. The phosphates of lime and soda are said to be useful internally to prevent the tendency to abscess. The dose is gr. j-ij twice or thrice daily.

Potassii Permanganas, ʒj to aquæ Oj, is a valuable injection to correct fetor.

Potassa Fusa. In using caustic potash or other alkali to open an abscess, pieces of plaster with a hole in them of the requisite size should be placed one over the other, and the caustic applied to the skin exposed through the hole. The caustic, slightly moistened, should be rubbed on the surface till it assumes a dull, bluish look, and the cuticle easily rubs off. The plaster may then be resumed, and the surface washed with vinegar and water to neutralize any remaining alkali. A poultice will help the separation of the dead parts and ease the pain. Mr. ERICHSEN prefers to open those abscesses with caustic where the skin is much undermined, congested and discolored. Professor GROSS discards it for this purpose altogether. Instead of the *potassa fusa*, the *Vienna paste* is preferred by many.

188. R.	Potassæ,		
	Calcis,	āā	partes equales.
	Alcoholis,		q. s.
To make a paste.			

It is milder in operation than the potash alone.

Sulphides. The sulphides of potassium, sodium and calcium have been warmly recommended by Dr. SYDNEY RINGER as preventive and curative in the tendency to large indolent abscesses.

189. R.	Calci sulphidi,	gr. ʒi-½	
	Sacchari lactis,	q. s.	M.
For one powder. Four to six daily.			

He says any one who will give the sulphides a fair trial will be gratified with the result.

Tannicum Acidum. A solution of tannin has been used to inject into old abscesses to arrest excessive secretion.

BED-SORES.

The treatment of bed-sores is largely preventive. It is important, by the use of air-cushions and slight changes of posture, to avoid long-continued pressure on the same part. In addition to this, the surface should be repeatedly painted with some preparation adapted to stimulate and strengthen the cutaneous vitality. It is to be recalled, too, in cases of spinal injury that the failure of the trophic influence so apt to occur in these cases is rapidly followed by a low vitality in the tissues, and extraordinary efforts must be put forth to prevent the appearance of sores. All precautions to avoid undue pressure on any part must be taken, and it will usually be a matter of economy to place the patient from the very first upon a water or air bed.

When the skin is once broken, the removal of pressure is imperative, and the system must be built up with nutritious food, stimulants and tonics. Locally, antiseptic and stimulating applications are required. The preparations most valued as preventives and curatives are given below.

PROF. THEODOR BILLROTH.

The surgeon should be constantly on his guard against bed-sores in all diseases at all prone to decubitus. A well-stuffed horse-hair mattress is the best sick-bed. The sheets placed over it should always be kept smooth, so that the patient shall not lie on wrinkles. As soon as any redness appears over the sacrum, the attendant should be doubly careful about the passage of urine and fæces, so that the bed should not be wet. A lemon should be cut and the reddened spot rubbed daily with the fresh juice from the cut surface. If there be excretion over the sacrum, the patient should be placed on a ring cushion, or else on a caoutchouc air or water-cushion. The excoriation may be painted with nitrate of silver, or covered with leather spread with lead plaster or soap plaster. If the sore be gangrenous, antiseptic compresses are to be applied, the wound being kept clean by chlorine water or carbolated oil. In the latter case care must be exercised lest symptoms of poisoning ensue. In-

ternally he employs supportive treatment with wine, acids, quinine and musk.

PHILADELPHIA HOSPITAL.

The following ointment is applied to the part where the skin is broken, after the sore has been thoroughly cleaned, washed with an antiseptic solution, and dusted with iodoform :

190.	R.	Ointment of oxide of zinc,	℥j.
		Castor oil,	Sufficient to make a thin paste.

This is applied on a bit of clean lint covered with a larger dry piece, and the whole held in place by adhesive plaster extending to the sound skin, and so arranged as to make the least pressure.

NOTES ON REMEDIES.

Alcohol, applied pure, or as whisky or eau de cologne, if used before redness occurs, will aid in hardening the cuticle.

Alumen. A saturated solution of alum, with as much tannic acid added as it will take up, is one of the best preventives of chafing.

Argenti Nitras. A solution of gr. xx to the ounce may be painted on the threatened but unbroken skin as soon as it becomes red.

Balsamum Peruvianum. After the sore has formed this is an excellent dressing.

Camphora. Tincture of camphor painted on the part is a good preventive.

Carbo. Dry charcoal sprinkled thickly over the black slough which forms in a bed-sore, hastens its separation and corrects the fetor.

Emplastra. Lead plaster and soap plaster are used as protectives. They should be spread on very soft kid, and be not so thick or hard as to lose their pliability. They must not be allowed to crease or rumple. Professor GROSS uses them rarely, as it is so difficult to keep them smooth.

Glycerinum, pure, or glycerine cream, rubbed over parts exposed to pressure, after washing, morning and evening, is one of the best preventives.

Hydrargyrum. Mr. HOLMES recommends the bichloride of mercury, gr. ij to alcohol f.℥j, for painting the part exposed, before redness or chafing appears.

Iodinium. If the part is brushed once or twice a day with tincture of iodine, at first diluted and then pure, abrasion is often prevented.

Iodoform. A healing application. The open sore should be dusted with finely-powdered iodoform, and then covered with oiled lint, or other bland applications.

Myrrha and similar vegetable aromatics and astringents are used as preventives.

Ricini Oleum. Equal parts of castor oil and balsam of copaiba make an excellent application to the sore.

Tannicum Acidium. See *Alumen*.

CARBUNCLES AND FURUNCLES.

There is no essential difference known between these lesions save in the matter of size. By mistake carbuncles have been confused with anthrax or malignant pustule, because of a wrong translation of the French term *anthrax*, signifying carbuncle. Anthrax or malignant pustule, or *charbon*, as the French style it, is caused by a special form of micro-organism, a bacillus, and is an altogether different disease from carbuncle, or large boil, *anthrax*, as the French term it, which is due to the various pyogenic cocci. While carbuncles are large boils, furuncles are small or moderately small ones: no other difference exists to present knowledge.

DR. PETER EADE, OF LONDON.

This practitioner, in an article in the *British Medical Journal*, July, 1876, maintains that boils and carbuncles are specific parasitic diseases; that in their early stages they may be infallibly destroyed and aborted by destruction of their central stem or root; and that even after this stage has passed, they may generally be destroyed, and in all cases, at the very least, greatly modified by the free application of carbolic acid; and that to produce this result the acid must be freely introduced into the central portion of the disease, and also into any other part where an opening exists or is formed artificially.

The essentials for the proper action of the carbolic acid Dr. E. conceives to be:

1. The acid must be applied in *strong* solution:

191. R. Acidi carbolic,
 Glycerini,

f. $\frac{3}{4}$ ss
 f. $\frac{3}{4}$ j.

M.

2. It must be brought into contact with the diseased tissue, for it appears to exert no influence on or through the unbroken skin. To this end, if sufficient openings do not exist when the case is first

seen, a proper one must be fearlessly made in the very centre of the disease by some appropriate caustic, and, perhaps, the acid nitrate of mercury effects this better and with less discomfort than any other.

3. This acid solution must be occasionally re-applied to, and into, the hole thus formed, or those already existing. He has found it a good plan to keep a piece of lint, wet with a weaker solution, constantly over the sore.

VERNEUIL (*Form. de la Faculté de Médecine*) advises the spraying of the surface of the swelling with a solution (2.5 per cent.) of carbolic acid, and the application of a carbolated powder in the intervals.

LEU, of the German army (*Lancet*, 1889), highly recommends the injection of a solution of carbolic acid (3 per cent.) into the beginning boil to cause its prompt disappearance. Even if pus has already formed it induces a rapid cure, and is very convenient of application.

MAURANGE (*Weekly Med. Rev.*, 1889,) has practiced this method by injecting the following solution into the inflamed zone at different points:

192. R.	Glycerine (neutral, 30 per cent.)		
	Distilled water,	āā	f. 3 ss
	Crystallized carbolic acid,		℥xliv. M.

A teaspoonful of this is to be injected at different parts in the inflamed area. The pain at first is severe, but soon subsides, and rapid amelioration of the boil follows.

This abortive treatment of boils and carbuncles has been very highly commended by Dr. THEODORE ROTH, of Eutin, Germany. The pain is relieved in a few hours, and three or four days effect a cure.

A somewhat similar plan is that of M. JOLI, who paints thoroughly the parts with the following:

193. R.	Acidi carbolic,	gtt. viij	
	Acidi tannici,	9ij	
	Olei ricini,	gtt. xl	
	Collodion,	f. 3j.	M.

It is recommended in *L'Union Médicale* that the region of the boil be washed with a 1:40 solution of carbolic acid or with a 1:500 solution of bichloride of mercury. After this is done carbolized oil may be placed over the part, and finally a powder composed of equal parts of iodoform and oxide of zinc. This treatment often causes resolution and prevents maturation of the boil (*Med. News*, 1891).

Prof. S. D. GROSS believes that it is seldom that a boil can be made to abort. He has, however, occasionally succeeded by a brisk purge, and the application of iodine. He prefers, however, to poultice the part, and make "an early and free incision." In many cases of carbuncle, he has found nothing so beneficial as a blister, large enough to include a considerable portion of the healthy skin, and retained until there is thorough vesication. Penciling the surface well with tincture of iodine, and then covering it with the following mixture, sometimes produces a very soothing effect:

194. R.	Ol. terebinth.,		
	Ol. olivæ,		
	Tinct. opii,	āā	f. 3j. M.

The method by *vesication* is that employed by the Parisian surgeon, JULES GUERIN. He teaches that the most efficacious mode of cutting short the progress of a carbuncle, and hastening its cure, is to cover the whole of the inflamed part with a large blister, having a hole in its centre to admit of discharges. The blister must be continued on until complete vesication has taken place, and any portion of the carbuncle over which this has not taken place will remain hard and resistant. When the blister has taken effect the pain is at once relieved, the redness and resistance of the tumor disappear, and it becomes benign and inert, its enucleation proceeding under the use of ordinary means without the aid of the bistoury. When, after the discharge of its contents, a deep excavation remains, it is useful to apply to the walls a solution of nitrate of silver, with the object of obliterating the open vascular orifices, and impeding the absorption of the diseased liquid.

Dr. C. B. HALL, of Cincinnati, in the Cincinnati *Lancet and Observer*, December, 1873, gives the following prescription:

195. R.	Tinct. arnicæ florum,	2 parts
	Acidi tannici,	1 part
	Pulv. acaciæ,	1 part.

A fragment of lint wet with this mixture to be placed upon the boil and changed every fifteen minutes until a coating is formed. This causes the throbbing pain to disappear, diminishes the tension of the integuments, causes the abortion of the boil, or, if too late for that, hastens the separation of the core.

Some surgeons report favorable results from the early application of pounded *ice* to an incipient furuncle; while others extol the value of early and liberal applications of *mercurial ointment*. For example, KENNER (*Med. and Surg. Reporter*, 1888,) advises that the

ointment of nitrate of mercury be applied in a thick layer as a plaster, for twenty-four hours, when it will usually be found that all pain and tenderness has disappeared.

DR. ALISON, OF FRANCE.

This physician (*La Semaine Médicale*, 1891; *Med. News*, 1891) advises the internal administration of boric acid, and at the same time its external application. From twelve to fifteen grains are given in tablets daily for a week or more. Four or five times daily the surface over the boils and about them is rubbed gently with a warm solution of boracic acid (4 per cent.), and in the intervals compresses wet with the same solution are applied. The treatment is said to abort incipient boils and to cause the rapid disappearance of matured furuncles, and to check the development of a new crop. Even in large carbuncles rapid amelioration of local and general symptoms are said to occur, and as a rule recovery results without surgical interference.

VEIEL (*Centralbl. f. die gesammte Therap.*, 1891) advises, in case boils are already formed, that warm poultices, moistened with bichloride of mercury solution (1 : 1,000) be applied, and afterwards a paste be employed, made up of zinc ointment, to which has been added 4 per cent. of boracic acid. The ointment is rubbed into the surface of the boil, and then put upon a bit of lint as a thick plaster and applied.

DR. J. H. DIBBRELL, JR., ARKANSAS.

This practitioner observes, in the *Medical and Surgical Reporter*, March, 1877, that experience seems to have demonstrated that carbuncles do far better without any treatment whatever than when subjected to deep and extensive incisions. A simple puncture, when the tumor is hard, brawny and painful, will sometimes greatly mitigate the pain, but will not in any degree limit the extent or duration of the disease, or tend to arrest the sloughing process.

The use of *collodion*, in conjunction with carbolic acid, has yielded, in his practice, such satisfactory results as to induce the belief in its superiority over other modes of treatment. He combines it with *carbolic acid* as follows: when the carbuncle is seen early, he punctures it, and with a camel's-hair pencil or small pointed stick, introduces into the opening thus made pure carbolic acid. If the disease has made greater progress, and one or more small, acne-like pustules

have made their appearance on the tumor, these are carefully opened, which can be done without causing pain, and the acid introduced at each opening, as before indicated. The effect of the acid when first applied, especially if it touch a denuded surface, is to produce a sharp, stinging pain, which is, however, of but momentary duration. The next effect is local anæsthesia, and the patient is for a time, perhaps hours, free from pain.

Carbolic acid, possessing in a notable degree anæsthetic, anti-septic and caustic properties, seems to be peculiarly adapted to the treatment of the disease under consideration, which is usually attended with great pain, sloughing, and an intolerable odor. Its use certainly diminishes the pain, corrects the odor, and arrests the sloughing process with much promptness.

After the acid has been applied, collodion should be several times painted over the carbuncle, and beyond it a few lines, on the uninflamed skin. *All the openings are to be left free*, in order to give egress to discharges. Each layer or film of the collodion should be allowed to dry before another is put on. This dressing may be renewed once daily, and the collodion previously applied, if partially detached, should be peeled off before a new application is made. If the part on which the carbuncle makes its appearance be covered with hair, this should be cleanly shaved off, otherwise the collodion will be difficult to remove, and at the same time cause considerable pain.

196. R. Aquæ chlorinii,

f. $\frac{3}{4}$ ss.

This amount, given three times a day, has been highly commended in furunculous disease, by Dr. T. N. WYLIE, of Texas. (*Medical and Surgical Reporter*, May, 1873.)

197. R. Acidi sulphurici diluti,

gtt. xx.

This amount to be given in a glass of water three times a day. It is recommended in the *Medical and Surgical Reporter*, 1873, by Dr. MADISON MARSH, as almost a specific in furuncular disease.

PROF. SIDNEY RINGER, OF LONDON.

This excellent authority highly extols, in carbuncles and boils, the external use of the sulphides, as:

198. R. Calcii sulphidi,

gr. $\frac{1}{10}$ - $\frac{1}{8}$.

This amount in a pill, five or six times daily.

For a local application to carbuncles and abscesses he has found nothing give greater relief than this:

199. R. Extracti belladonnæ,
Glycerini,

āā q. s.

Make an ointment and apply to the part.

Physicians who have made a trial of this treatment report on it very favorably. In the *Lancet*, February, 1877, one details a case of furunculosis thus managed, and adds:

"This case serves to illustrate in a remarkable manner the action of this drug. I have used the sulphide latterly in all similar cases with the most pleasing results, and have always found the patients spontaneously enthusiastic over the treatment. I could multiply evidence if space allowed. I am quite sure that any one who gives the sulphides a fair trial will never like to be without them in treating any case in which suppuration takes place or is threatening."

DR. DELIOUX, FRANCE.

200. R. Sodii arseniatis,
Aque destillatæ,

gr. iss
f. ʒ vjss. M.

A teaspoonful in the morning before eating, and in the evening before the last meal, to persons affected with furuncles.

The author administers this arsenical solution during three weeks; he then purges the patient with from five drachms to an ounce of sulphate of sodium. For drink, an infusion of sarsaparilla (ʒiv to the pint). *Diet*, non-nitrogenous, in which the fresh fruits ought largely to enter; complete abstinence from acids and alcoholic stimulants. When the furuncles are hard and slow, the following ointment may be employed:

201. R. Sulphuris loti,
Camphoræ pulveris,
Cerati,

gr. xv
ʒj
ʒvij M.

The application of tincture of iodine at the *début* of an inflammatory furuncle sometimes causes it to abort. Feeble sulphur-baths, with the addition of gelatine, as well as bran and starch-baths, are useful.

M. DE SAVIGNAC, of Paris, in obstinate furunculosis, employs alternately *sulphate of soda* and *arsenic*. The latter is pushed to its constitutional effect, while the former is used only as an occasional purgative.

M. BEAUQUINQUE, OF FRANCE.

This writer (*Rev. Gen. de Clin. et de Therap.*, 1889,) reports three cases of carbuncle of the lip, a form especially difficult of treatment, as having been promptly cured by the application of the tincture of iodine. The method is very favorably commented upon by an edi-

torial writer in the *Med. News*, for February 22, 1890. The mode of application is quite simple, and consists in first scraping off or otherwise removing the crusts or scabs closing the orifices of the carbuncle, and then applying the tincture of iodine by a camel-hair pencil or a small bit of cotton. There is little pain and practically no danger of any toxic consequences even if a large amount were applied. Occasionally it may not be inadvisable to inject the tincture of iodine into the interior of the lesions.

Among other antiseptics which have been suggested for use in applications to carbuncles, ichthyol has been mentioned.

202. R. Ichthyol, ℥i
Camphorated lard, ℥ss. M.

This salve should be applied three times daily about the inflamed area, and if the skin become broken the tissues are to be touched with nitrate of silver. The ichthyol causes diminution of pain, favors resolution and aids in cicatrization (*Med. News*, 1890).

WILKINSON (*Texas Courier-Record*, 1887) recommends the following as an application :

203. R. Carbolic acid,
Salicylic acid,
Borax, āā
Glycerine, ℥j
Oil of sassafras, f. ℥j
Water, f. ℥ij
sufficient to make Oj. M.

DR. A. WAHLTUCH, LONDON.

204. R. Liquoris plumbi subacetatis, f. ℥ij
Acidi sulphurici, ℥xx
Aquæ, Oj. M.

Apply locally in anthracose swellings and gangrenous ulcerations.

DR. JAMES T. HEADY, OF KENTUCKY.

Make a crucial incision about one line in depth, at right angles, entirely across the discolored parts, where death or partial death has taken place. Into these incisions, along their entire extent, apply some finely-powdered *corrosive chloride* of mercury. The quantity in no case must exceed one-half grain, otherwise disagreeable or dangerous results may follow. After the incision and the application of the chloride, a poultice, or resin cerate on lint, should cover the parts affected. Within twenty-four hours afterward, a complete line of demarkation will have been formed, and the parts within that line will be insensible, hard, dry and resembling rotten wood.

The slough will separate in a few days, leaving a healthy, granulating surface.

Some physicians have reported benefit from :

205. R. Potassii permanganatis,
Aquæ destillatæ,
Use as a dressing.

gr. xxx
f. ℥j. M.

MR. GEORGE COWELL, OF LONDON.

This writer (*Practitioner*, February, 1872,) recommends commencing the treatment by applying *nitrate of silver* freely over the surface of the carbuncle, repeated, if necessary, once or twice after intervals of two days. After the application, a small pad of dry lint is bandaged over the part. Later on he uses poultices and carbolic acid lotion.

MR. T. HOLMES

Prefers the use of the caustic potash to the knife. He has found it equally efficacious in relieving the pain, and checking the spread of the sloughing, without any drawback of either shock or hemorrhage, both of which are often serious in large carbuncles. When the skin has not given way, the potash is freely rubbed on till a slough has formed, or what he considers the better plan, the skin is divided by the scalpel, and the caustic inserted. Small pieces should be put in the incision and allowed to remain there. He adds that it is many years since he has practiced the free incision of carbuncles, preferring the method here described.

DR. O. FERRALL, OF DUBLIN.

The treatment of carbuncles which, in the opinion of this gentleman, should supersede all others, is that by *pressure*. Adhesive strips are applied concentrically, commencing at the margin of the tumor with narrow strips, overlapping each other slightly, until within half an inch of the centre, which space is left open for the discharge. Usually these strips will be found loosened in twenty-four or forty-eight hours. New ones should then be applied.

This method has been adopted by Prof. JOHN ASHHURST, JR., of Philadelphia, and other American surgeons, and they report that it relieves the patient of pain promptly, and cures in less time than incisions, while it also avoids the risks which accompany the use of the knife. Mr. S. MESSENGER BRADLEY, of Manchester, also believes that the cure of boils and carbuncles is expedited, and the

pain is lessened, by such treatment. The simplest, and at the same time the most effectual method of accomplishing the pressure is by placing a piece of sheet lead, with a hole cut out of the centre large enough to encompass the base of the carbuncle, and then, by means of elastic straps and a lace, affixing it firmly to the part required. Any one can manufacture such an appliance in a few minutes, the size of the lead sheeting and the length of the straps, of course, being proportioned to the size of the tumor and the part of the body to which it is to be applied.

GENERAL TREATMENT.

The general treatment of boils and carbuncles in their more severe forms, must, in nearly all cases, be supporting and hygienic. The surroundings should be salubrious, and a change of air is very desirable. All irritants of the skin must be avoided, such as cold baths, flesh-brushes, coarse towels, etc. At the outset, a moderate mercurial purge is often extremely beneficial. When marked gastric derangement exists, an emeto-cathartic is advisable, as,

206.	R.	Hydrarg. chloridi mitis,	gr. x	
		Pulveris ipecac.,	gr. x-xx.	M.
For one dose.				

This should be followed by free drafts of chamomile tea or infusion of valerian (GROSS). This may be followed by bark, quinine and acids, with wine or porter. The urine should be examined for sugar, as it is not infrequently present in these eruptions, and requires appropriate treatment.

Prof. HARVEY, of Paris, recommends the free use of *tar water*, about a quart a day, which may be drunk mixed with a light wine, especially in furunculosis.

The internal use of *arsenic* has many advocates (see above).

The propriety of using the knife in carbuncles, either by crucial incision, by subcutaneous sweeps, or by the total excision of the diseased structure, all of which methods have their warm partisans, has been seriously questioned and wholly rejected by such eminent authorities as DUMBREICHER, BILLROTH, DITTEL, and

SIR JAMES PAGET.

This last-mentioned surgeon entirely rejects the use of the knife, and even dissuades all administration of stimulants or medicines, except opium when needed to allay pain. He discountenances con-

finement to bed or the house, holding that fresh air is very conducive to recovery, and that nothing is really needed beyond keeping the parts clean, and avoiding the contact of the parts with the neighboring integument. This may readily be accomplished by the application of any soothing plaster. He does not believe carbuncle is a dangerous affection, and thinks that the patients who have died of it really died either of the treatment or of some visceral disease which preceded it. (*Clinical Lectures*, 1875).

DR. JAMES GREY GLOVER, OF LONDON.

This writer in the *Practitioner*, 1870, disapproves of both incision and the administration of stimulants in carbuncle. The medical treatment he recommends is:

207. R. Quininæ sulphatis, gr. ij
Tinct. ferri chloridi, ℥ x-xv. M.
This amount thrice daily.

A grain or two of opium, if called for to give rest, should be exhibited every night. The diet should be good and nourishing.

Beef tea, milk, and a glass or two of wine daily, are allowed. Locally he uses:

208. R. Unguent. terebinth.,
Adipis, partes equales. M.
This is applied over the surface of the carbuncle, and upon it a large piece of cotton wool. It should be changed twice or thrice a day.

DR. L. DUNCAN BULKLEY, OF NEW YORK.

209. R. Sodii hyposulphitis, gr. xxx
Aquæ, f. ℥ iv. M.
This amount three or four times daily, on an empty stomach, in furunculosis.

Dr. BULKLEY considers this a most valuable remedy to prevent the tendency to boils. When it fails, which has rarely happened in his hands, he gives large doses of quinine.

DR. ISAIAH THOMAS, WEST CHESTER, PA.

This physician has found a decoction of the black alder, *Prinos verticillatus*, of undoubted advantage in carbuncle and anthracose disease. Two ounces of the bark to three pints of water, boiled to a quart, is a proper proportion, of which a wineglassful three times a day may be taken.

NOTES ON REMEDIES.

Aqua Picis has been recommended by Professor HARDY.

Argenti Nitras is preferred as a caustic to abort boils by some surgeons.

Arnica. This has been highly extolled in boils, both for external and internal use, by Dr. PLANAT. (*Jour. de Therapeutique*, 1878.) He prescribes gtt. xxv of the tincture every two hours, or externally as follows :

210. R. Extracti florum arnicæ, ℥ j
Mellis, f. ℥ ij.

This may be thickened with lycopodium or marsh-mallow and applied as a paste on linen. He claims that it cuts short all furuncular symptoms with remarkable promptness.

Arsenicum. The internal use of arsenic is highly esteemed in some forms of furunculosis. Dr. GROSS prefers arsenic in substance, gr. $\frac{1}{16}$ – $\frac{1}{10}$ *ter die*.

Belladonna, in extract, with glycerine, is a valued means to allay the pain of boils and carbuncles. Mr. CHRISTOPHER HEATH also recommends its external administration to correct the tendency to their formation.

Boric Acid has been advised as an internal remedy and as an external application by ALISON. (p. 239.)

Calcii Sulphidum is said by RINGER to be very efficient in preventing boils and carbuncles, gr. $\frac{1}{16}$ – $\frac{1}{2}$ in a powder with sugar of milk thrice daily. In the boils attending diabetes it is useless.

Camphora. Boils in their early stages, if painted for half a minute with tincture of camphor, and then, when the skin is dry, smeared with camphorated oil, and thus repeated a few times, will generally abort.

Campho-Phenique (p. 97) has been successfully used as a dressing after incision of a boil.

Carbolicum Acidum. A drop of pure acid applied to the apex of a coming boil, will sometimes abort it. As a dressing to carbuncles the dilute acid is very serviceable. VERNEUIL recommends a spray of a 2½ per cent. solution to abort a boil.

Collodion. If collodion be applied at the papular or pustular stage of an ordinary boil, the swelling around the pustule subsides, and the boil is arrested. The collodion should be repeatedly painted upon the part. (See above.)

Ferri Perchloridum. Highly commended by Dr. SCHNEIDER in carbuncle. (p. 245.)

Ichthyol has been commended as an antiseptic agent for local application.

Iodinium. The tincture or liniment, if applied so as to produce vesication around a boil or carbuncle, is an efficient means, according to Dr. J. K. SPENDER, to reduce the local inflammation.

Iodoform has been variously used as a dusting powder and as an injection material, dissolved in ether, in the treatment of matured boils.

Hydrargyrum. A plaster of mercurial ointment, applied early, is an excellent treatment in carbuncle. The corrosive chloride has been used later in the disease. (See above.) When there is an obstinate recurrence of boils or carbuncles, slight ptyalism may be required; minute doses of the bichloride are preferable. (GROSS.)

Hydrastis Canadensis, internally, in full doses, (f.ʒij four times a day,) is especially valuable in preventing recurrent crops of boils in scrofulous subjects. It should be assisted with saline laxatives.

Phosphorus. In cases of obstinate furunculosis Dr. SAMUEL R. PERCY has used his preparation of "vitalized phosphorus" with much advantage.

Potassii Chloras. When the tendency to a recurrence of carbuncle or boil is attended with digestive disturbance, acidity and flatulence, the chlorate of potash, gr. v-x, thrice daily, will often improve the health.

Potassa Fusa is preferred by Mr. T. HOLMES as a caustic in carbuncle.

Potassii Permanganas, in solution, applied on pieces of old muslin, after the carbuncle has been freely divided, has been highly extolled, as relieving pain and checking fetor.

Prinos Verticillatus is of value in carbuncle. (See above.)

Poultices are often of service in causing the separation of the core, and in bringing the pus to the surface. Moistened with antiseptics they constitute an excellent means of application for the latter.

Rheum. Furuncles in children generally depend on some disorder of the alimentary canal, as entero-colitis and dyspepsia. In such cases the following prescription, from the Children's Hospital, Philadelphia, will be found to act most efficiently in ridding the system of them:

2II. R.	Sodii bicarb.,	3ss-iss	
	Syr. rhei aromat.,		
	Tinct. columbæ,	āā	f. ʒj. M.

Teaspoonful three times a day to a child of two years.

Sodii Sulphis and *Hyposulphis*, in solution, as a dressing, are useful antiseptics.

Sulphur internally is said to act efficiently to prevent recurrence. It has also formed an ingredient in local applications.

Tannicum Acidum is a useful local astringent.

Terebinthine Oleum. Painting a boil in its early stage with turpentine occasionally aborts it. Later in its development, turpentine liniment is an excellent stimulant application.

Vesication. Applying a blister directly over a boil or carbuncle is a popular treatment with many. (Above.)

FELON (WHITLOW; PANARIS.)

THE ABORTIVE TREATMENT,

According to Mr. ERICHSEN, occasionally succeeds, if employed early in the following manner: The patient is well purged and placed upon a strictly antiphlogistic diet. The inflamed finger is freely leeches, and then alternately poulticed and soaked in very hot water for twenty-four or forty-eight hours, being kept all this time in an elevated position. This sometimes cuts short the inflammation at the outset. If it fails, a free incision must promptly be made.

A writer in the *Boston Journal of Chemistry*, July, 1871, states that he has adopted with much success the plan of applying collodion over the finger and the part where the pain is felt, as soon as it is noticed. The collodion, in contracting, exerts an even pressure, and if kept on for twenty-four hours, the pain, at first increased, will generally disappear.

An excellent abortive treatment of felon is to bind the finger firmly next to the hand with rubber tape. Inflammation will often disappear in twenty-four hours. Even after the pus has formed, this method is valuable.

A correspondent of the *Lancet*, July, 1874, recommends the application of a small blister directly over the seat of pain, as early as possible.

Dr. DE FORGES claims to have often aborted a felon by having the patient hold the finger for some time in pure alcohol or in camphorated spirits.

DR. G. G. DAVIS, OF PHILADELPHIA.

This surgeon (*Univ. Med. Magazine*, 1891), in speaking of a felon, states that in its earliest stages it is a puzzling affection to treat, inasmuch as incision before suppuration is a bit of bad surgery, and one cannot be sure that suppuration may not be averted entirely. He makes it a rule not to cut unless either the pain has been so severe as to prevent sleep for two consecutive nights, or when, from the violence of the local trouble, he is convinced that suppuration is inevitable. When incision is deferred, he suggests that the affected finger be wrapped in cloths wrung out of hot water, and covered with oiled silk or additional woolen cloths. A patient with an impending felon can well afford to nurse it a couple of days. The attendant pain can be lessened by opiates, and enough given to

procure sleep at night. At the same time a good purge should be given, with Epsom salts. One or two days of this treatment is usually sufficient to decide the course of the case, and then treatment is obvious.

After incision of the felon, care must be had lest the opening become obstructed by scabbing or adhesion of the dressings, and lest thus the discharges be kept back in the wound. Dr. DAVIS prefers to dress the finger in oakum wrung out of bichloride of mercury solution (1:2000), as less apt to clog up the wound than other materials used for dressing. The oakum, having been wrung out, is dusted with aristol or iodoform, and placed on a bit of oiled silk. After the incision has been made (in the first stages of anæsthesia) and the contents of the panaris all evacuated, the wound is dusted with aristol or iodoform, a small strip of sterile oiled silk inserted, and the dressing applied. The patient should be permitted to come from under the anæsthetic as soon as the incision is made, and will probably be conscious before the dressing is completed. After a rest he will probably be able to leave the office unattended.

There is a superficial form of panaris described by Dr. DAVIS, occurring in the upper layers of the true skin. When met it may be incised with a sharp scissors without pain, and the use of peroxide of hydrogen or nitrate of silver will suffice to clean the pocket of its purulent contents. A boracic acid ointment is sufficient for the purpose of dressing.

Dr. D. B. BEAVER, of Reading, Penn., in commenting on the above in a later number of the same journal, urges that the earliest moment for incision be taken, so as not to permit so much suffering for the patient. As soon as there is a dusky swelling with a throbbing pain in the finger, there is pus present, and incision should be done. He advises that with a probe point the affected part be explored in order to find one especially tender spot. This found, a narrow, sharp blade is to be thrust down deep upon the lesion, and then withdrawn with a forward sweep to lay open the part.

The internal use of *calcium sulphide* has been recommended in the early stages with a view of aborting the lesion.

When in paronychia osteosa, the bone becomes necrosed, it should not be removed until loose, when it may be lifted out, and the wound allowed to heal in the ordinary manner.

The advice given by some eminent surgeons (JAMES SYME) to amputate the finger after the destruction of the bone, should not be

followed. The retention of the part has the following advantages, viz: 1. A moderately useful finger is preserved. 2. The symmetry and appearance of the hand is not so much altered as in amputation. 3. By retaining the paccinian corpuscles, the tactile function is intact—a matter of importance in the following of many pursuits in life. 4. The great disadvantage is the length of time the parts take to granulate.

Dr. GROSS observes: "Dead bone is removed as soon as it is easily separable, the periosteum being as little interfered with as possible, and amputation always avoided, experience having shown that a new phalanx is sometimes formed; and even when this does not happen, the boneless finger will be both useful and sufficiently seemly."

ULCERS.

In the treatment of simple ulcers little more is needed than cleanliness and rest and protection of the part.

The neglect of the *constitutional treatment* of ulcers is not unfrequently the cause of their obstinate continuance in spite of the most appropriate local applications. In strumous subjects, the special treatment for scrofula is called for; in gouty, scorbutic, syphilitic constitutions, it is vain to expect the part to heal unless the special dyscrasia is likewise removed.

Occasionally, where no cachexia is present, and where the ulcer is of the œdematous or painful variety, the administration of *tinctura opii*, gtt. x-xx, thrice daily, has been found to favor remarkably the healing process. (Dr. J. B. BURNETT, in the *Medical and Surgical Reporter*, Sept., 1869.)

Where there is general debility, the blood poor and the nutrition feeble, the following may be employed (as it is at the Philadelphia Hospital) as a general tonic:

212. R.	Tinct. ferri chloridi,	f. ʒj	
	Cinchoninæ sulphatis,	gr. viij	
	Strychninæ,	gr. ¼	
	Syrupi,		
	Aquæ,	āā	f. ʒj
			M.
A teaspoonful for a dose.			

Mr. CROFT, of St. Thomas's Hospital, London, has called attention to the value of quinine, in full doses, in serpiginous and phage-

denic ulcers. He gives as much as gr. viij, with potassii iodidi ℥j, twice a day, and has seen ulcerations of the most obstinate character rapidly change for the better after these heroic doses were commenced.

INDOLENT ULCERS.

These are typified by the chronic ulcers upon the limbs of persons over middle age. Whatever their cause, they are slow in healing, have, as a rule, heavy and indurated margins, and the granulations are small and do not possess the natural pink color of health. The margins are apt to be blue, showing the tendency to hæmatic stasis. The treatment of these ulcers is well described by

DR. EDWARD MARTIN, OF PHILADELPHIA.

This gentleman, from an extended experience in the treatment of this class of ulcers gained in the wards of Blockley Hospital, contributes a valuable contribution to its treatment in the *University Medical Magazine*, March, 1889.

He remarks that even before the ulcer is developed, while yet the skin is unbroken, special precautions must be exercised if there be any local predisposition evident or a constitutional tendency manifested. All rubbing of clothes should be avoided. Cleanliness should be insisted upon. Lotions of borax, boracic acid, salicylic acid or other weak antiseptics should be used night and morning, and wherever there are varicose veins met in the limbs, particularly in syphilitic or alcoholic subjects, these should be properly supported by careful bandaging.

The ulcer having once developed, the surgeon should seek to render it aseptic; continued wet dressings of boric acid lotion, dilute lead water or a very weak solution of corrosive sublimate may accomplish this and do good by the effect of warmth and moisture. When the surface has been rendered aseptic, the use of antiseptics is to be discontinued as a dressing. The injury should be dressed often, but after each cleansing with weak antiseptic the surfaces should be rinsed off with sterilized water or the sterilized salt solution (5 per cent. of sodium chloride) known as Thiersch's solution. A smooth surface, as a bit of sterile protective or sterile oiled silk, containing no antiseptic, however, should be placed over the surface, and then the ordinary antiseptic dressings and a bandage. The latter is a most important part of the treatment. The bandage is applied evenly and so that uniform pressure is gained. On account

of the shape of the leg, and the tendency for an ordinary spiral reversed bandage to slip down after a few hours, Dr. MARTIN recommends that a form of figure of eight bandage be applied, so that each turn of the roller presses above and below the swell of the calf of the leg. Thus applied the bandage easily keeps its position, and at the same time exerts an even pressure unattainable by a spiral or spiral reverse bandage.

Where the patient is compelled to labor* and the physician cannot see and dress the ulcer daily, the rubber dressing of Dr. HENRY A. MARTIN, of Massachusetts, may be recommended. This consists of an elastic bandage which should be rendered aseptic or should cover in as under-dressings aseptic material. It should be washed daily in boracic acid solution and the limb also be cleansed with the same lotion, and over the dressing a thick stocking, rendered aseptic by boiling, drawn. The patient applies the bandage in the morning before he assumes the erect position, applying it lightly, so that when the limb swells from the venous congestion on rising, exactly the proper degree of pressure may be attained. The bandage should not be removed at night until the patient has assumed the recumbent position, and may be replaced by a boric acid dressing, wet or dry, until the morning.

Where the patient permits, the ulcer should be thoroughly scraped with the knife or curette, the indurated edges trimmed away, and after thorough sterilizing, have skin grafts applied. If these can be induced to grow, the ulcer may heal with a good skin surface rather than with a scar ever ready to break down.

Of all modes of treatment that of strapping and bandaging is the most in vogue, but to be effective it must be skillfully applied. The particular point in its successful use is the obtaining even and proper pressure, and this is gained almost entirely by the bandage. The wound having been properly cleansed, should be powdered over with iodoform, and adhesive strips evenly and firmly applied, so that over both sides of the ulcer the strips extend several inches. Then the bandage is applied, preferably the figure of eight referred to.

Some forms of chronic ulcers, slowly and steadily progressive, and accomplishing extensive destruction of tissues, are best treated by constant *warm immersion*, the whole limb or the whole body being immersed in a warm bath for days. Where the ulcer after advancing reaches a stage at which repair seems no longer to go forward, where the wound again threatens to become indolent, and the edges

tend to become thick and hard, *massage* with each dressing will give a new impetus. Effleurage is perhaps most frequently successful; but the parts having been rendered sterile they should be kept so.

Strict cleanliness, stimulant applications, protection, rest, and sometimes immobility, are required where there is much tendency to recurrence. When this tendency is inveterate, a plaster cast had best be applied to prevent it. Of the medical means at hand in the treatment of ulcers, Dr. MARTIN lays especial stress upon *opium*. Of the external factors for cure, the most promising is skillfully applied pressure.

DR. RICHARD H. HARTE, OF PHILADELPHIA.

This authority (*Univ. Med. Magazine*, 1890) states that chronic leg ulcers generally depend on circulatory inactivity as one of the factors in ætiology, and are usually surrounded by an indurated bank of inflammatory tissue which interferes with a proper blood supply. In order to bring about a cure the nutrition of the part must be improved and the obstructing barrier (the wall of lymph) must be removed. This may be done by excising by the knife or by carefully adjusted pressure. The indurated edges may then be scarified and divided by radiate cuts; may be removed, where the patient does not object. Where this is not possible, Dr. HARTE is accustomed to carry out the following outline—and this is usually the method employed in his hospital, as well as private cases.

The patient is directed to bathe the leg for half an hour before the surgeon's visit, in water as warm as can well be borne. This removes all the dried serum, old epidermis and effete matter. Then a warm flax-seed poultice is prepared and applied to the leg from the ankle to the knee, warm and moist (but not sloppy). After the poultice has been applied an Esmarch or Martin elastic bandage is started from the toes, care being taken to first cover the parts not enclosed by the poultice with cotton or lint. Where the ulcer is foul, charcoal should have been incorporated into the poultice for its absorptive effects. By these means rest, an even, constant and regularly applied pressure, and the softening influence of heat and moisture are gained. Usually the poultice thus made and covered in with a rubber bandage may be kept on for 48 hours, unless the ulcer be unusually foul. As a rule, poulticing should be continued for four or five days, when the surface will be found to present a healthy aspect. After that the cure is completed by carefully applied strips

of adhesive plaster, each two and a half inches wide, and beginning some distance below and ending some distance above the ulcer, encircling about three-fourths of the limb (not the entire, for fear of suppressing circulation). Each strap should overlap the preceding one until the whole sore is enclosed. In order to protect the margin of the ulcer, a ring of oxide of zinc ointment should be drawn about the sore before applying the plaster. Then a carefully applied figure of eight bandage, that advised by GAMGEE, and similar to the one above mentioned by MARTIN, should be placed upon the limb to gain the proper pressure.

PROF. JAMES SYME, F. R. S. E.

The indolent ulcer is confined almost exclusively to the legs of people advanced beyond middle age, and constitutes a very troublesome subject of surgical practice, as it is very apt to recur after being healed.

It is distinguished by a smooth surface, generally depressed, of various colors, having no appearance of granulations. The discharge is viscid, tenacious and fetid, the edges thick and white. There is always diffused swelling of the limb, firm and incompressible in character, though there is no circumscribed hardness in the immediate neighborhood of the ulcer.

The treatment generally thought most useful is *rest* in the horizontal position, and *pressure* by means of strapping the limb with adhesive plaster.

A much more speedy treatment, one more lasting in its effects, more economical, easy of application and convenient, is that by *blisters*. The blister applied should be large, covering not only the sore, but a considerable part of the limb. No other treatment is necessary; there is no danger of erysipelas, and the favorable result is almost certain. It is of essential importance that the blister takes in the whole thickened part of the limb.

As applications for indolent ulcers the following instructions may be found to give proper information:

DR. HIGGINBOTTOM.

213. R. Argenti nitratis,	3j	
Aquæ destillatæ,	f. 3 iij.	M.
Dissolve, and immerse in the solution—		
Fine charpie,	3 ss.	
Dry on a plate.		

Some prefer the solution of nitrate of silver of the strength of a scruple to the fluid ounce.

This black charpie is recommended in the treatment of chronic ulcers requiring stimulation.

214. R. Calcii chloridi, $\mathfrak{z}j$
 Opii pulveris, \mathfrak{z}^{iss}
 Aquæ destillatæ, f. $\mathfrak{z}v$. M.

Shake the solution, and immerse a compress in it for application to indolent ulcers of the legs to induce cicatrization.

DR. JAMES BRAITHWAITE, LEEDS.

215. R. Acidi carbolici, $\mathfrak{z}j$
 Aquæ destillatæ, f. $\mathfrak{z}viii$. M.

Apply this to the ulcer by brushing it on, and expose the part to warm, dry air for some hours. It forms a glazed, impervious surface.

MR. THOMAS KIRKLAND, OF LONDON.

216. R. Emplastri plumbi, $\mathfrak{z}j$
 Cretæ preparatæ, \mathfrak{z}^{ss}
 Olei olivæ, $\bar{a}\bar{a}$
 Acidi acetici, f. \mathfrak{z}^{ss}
 Plumbi acetatis, $\mathfrak{D}j$. M.

This is the celebrated "Kirkland's Neutral Ointment," a very soothing application in irritable ulcers, highly commended by Sir BENJAMIN BRODIE and other surgeons.

DR. OHLEYER, OF GERMANY.

217. R. Magnesiæ,
 Aquæ, q. s.
 To form a thin paste.

This, or dusting the surface freely with the magnesia, has proved of much use in atonic ulcers, slow wounds and painful sores.

DR. ROBERT J. GRAVES, DUBLIN.

218. R. Balsami Peruviani, $\mathfrak{z}j$
 Olei ricini, f. $\mathfrak{z}ij$. M.

This is to be applied, by means of lint, to the bed-sores observed in prolonged illness, and particularly in typhoid fever. Two or three times a day, linseed-meal poultices are to be applied over the lint, and the ulcerations are to be washed morning and evening with chlorine water.

THE ROOSEVELT HOSPITAL, NEW YORK.

The Roosevelt Hospital treatment of languid old ulcers is that

they are dressed with Labarraque's solution (liquor sodæ chlorinatae) until the sore becomes surgically clean. The solution is to be diluted with water, according to circumstances. If then the granulations have a healthy appearance, the ulcer is strapped and the limb bandaged. If the granulations become flabby and inactive, a dressing of balsam of Peru is applied, and over that straps and bandage.

Various old surgeons have spoken of the excellent effects of *oleum terebinthinæ* as a stimulant to old ulcers, and it has fallen into undeserved neglect. The surface should be freely painted with it, and lint wet with it may be laid upon the ulcerated surface.

MR. PHILIP COWEN, M. R. C. S. L., LONDON.

219. R.	Farinæ (wheat flour),	℥ iv
	Acaciæ pulveris,	℥ j
	Tragacanthæ pulveris,	℥ ss
	Ovi,	No. j
	Cretæ,	℥ ij
	Aquæ frigidæ,	℔ j.

Mix and heat to boiling; boil one minute and cool. It should be thin enough to spread with a brush.

The patient, provided with pot and brush, paints the ulcer with this three or four times daily, covering it, when done, with a soft rag. MR. COWEN claims very good results from this. (*Lancet*, January, 1873.)

MR. ROBERT DRUITT.

220. R.	Creosoti,	gtt. xx	
	Unguenti resinæ,		
	Adipis,	āā	℥ j. M.

A good stimulating application in indolent and sloughing ulcers and hæmorrhoids.

Much praise has of late been accorded to *iodoform* in obstinate and irritable ulcers. Dr. GUBLER, of Paris, uses the formula:

221. R.	Iodoformi,	gr. xv	
	Ætheris,	f. ℥ j.	M.

In consequence of the rapid volatilization of the ether, the iodoform is reduced to a state of extreme tenuity and covers the surface in a uniform manner.

DR. PARETA, OF PALERMO, ITALY.

222. R.	Iodoformi	℥ j	
	Alcoholis,	f. ℥ ss	
	Glycerini,	f. ℥ iv.	M.

Wash the ulcers daily with this, and then dust them liberally with iodoform in fine powder.

Iodoform is certainly an admirable local anæsthetic. It may be advantageously used as an ointment, ʒij–iv to lard ʒj.

The same teacher, and others, have also experimented satisfactorily with *pepsin* in obstinate phagedenic and cancerous ulcers. His formula is :

223. R. Pepsinæ, ʒ ss
Acidi lactici, ʒ j
Aquæ, f. ʒ iijss. M.
- Use as a local application to the ulcer.

This, he states, has succeeded after numerous other vaunted remedies had failed.

SIR JAMES PAGET.

224. R. Ung. resinæ,
Bals. Peru, partes equales. M.
- For senile ulcers. They should be well strapped with this, the constitution being supported by a generous diet, warmth, etc.

J. E. ERICHSEN.

225. R. Zinci sulphatis, gr. xvj
Tinct. lavand. comp.,
Spts. rosmarini, āā f. ʒ j
Aquæ, f. ʒ viij. M.

This will be found a most useful application to weak ulcers, with high, flabby granulations, such as occur from the too prolonged use of emollient applications.

DR. JAMES B. MOBLEY, OF ALA.

226. R. Passifloræ incarnatæ succi, Oss
Ol. jecoris aselli, f. ʒ iv. M.
- Apply to the surface of chronic ulcers thrice daily.

The soothing and healing action of the juice of the passion flower has been employed in a number of cases by this practitioner. (*Medical and Surgical Reporter*, August, 1869).

The following applications are from various sources :

227. R. Olei cadini, f. ʒ j
Pulv. calcis sulphatis, ʒ vj. M.
- To be thinly spread on dressings for ulcers when the suppuration is profuse.

228. R. Hydrarg. chloridi corrosivi, gr. iij
Spts. frumenti, Oj. M.
- To be applied to indolent and scrofulous ulcers two or three times a day, on wet rags or lint.

This is very highly commended by Mr. JOHN MCLENNAN in the *Edinburgh Medical Journal*, March, 1876.

rendering the infiltrated tissue soft to the touch and presenting signs of contraction.

SLOUGHING ULCERS.

DR. JOHN H. BRINTON, OF PHILADELPHIA.

In sloughing and gangrenous ulcers, this surgeon frequently uses *bromine*, pure, or in the following formula :

230. R.	Brominii, Aque, Potassii bromidi,	f. ℥j f. ℥ ij gr. xxx.	M.
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Apply to the surface with a small sponge. He has used this agent in very many such cases with wonderful success; it is rarely necessary to make more than one application. (*Medical and Surgical Reporter*, December, 1870.)

DR. T. S. DOWSE, OF LONDON.

The use of *chloral* as an external application in sloughing and atonic ulcers, in abscesses, fungous hematomas, etc., has been highly commended by this practitioner, (*Medical Examiner*, Oct., 1876,) as well as others.

In some cases he first applied a blister, and then treated the blister with a solution of chloral.

Dr. DOWSE uses four solutions of chloral :

Solution No. 1.—Simple Solution of Chloral.

231. R.	Chloral, Water,	℥iv Oj.	M.
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Solution No. 2.—Glycerine and Chloral.

232. R.	Chloral, Glycerine, Water,	℥iv f. ℥j f. ℥ xvj.	M.
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Solution No. 3.—Chloral and Chloride of Zinc.

233. R.	Chloral, Solution of chlorinated zinc, Water,	℥iv f. ℥iv f. ℥ xvj.	M.
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Solution No. 4.—Chloral and Perchloride of Iron.

234. R.	Chloral, Solution of perchloride of iron,	℥iv f. ℥ij.	M.
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Mr. LUCAS, of Guy's Hospital, prefers:

235. R. Chloral,
Aque,

gr. iv
℥ 3j. M.

VARICOSE ULCERS.

DR. BOURGIGNON, PARIS.

The external use of the tartrate of iron and potash is praised by this writer. He finds that in chronic wounds generally, and especially in varicose ulcers of the leg, with hard, well-defined edges and unhealthy surfaces, this substance acts beneficially, generally effecting a cure in two or three months. He uses a solution of from two to six parts of the salt in one hundred of distilled water, a few drops of ammonia being added to prevent precipitation. Pledgets of fine charpie soaked in this are applied to the ulcer night and morning, and covered over with a thick layer of cerate.

NOTES ON REMEDIES.

Alcohol. This is an excellent application to sores and ulcers. It covers them with a thin layer of coagulated albumen. (For Alcoholic Dressings, see page 113.)

Alumen, applied in a dry powder or in solution to relaxed and abundantly secreting sores, is a fine astringent.

Argenti Nitras is an almost indispensable stimulant in the management of old ulcers.

Aristol is particularly beneficent in ulcers of specific origin, used as a dusting powder.

Balsamum Peruvianum is a favorite stimulant, combined with resin ointment, of Sir JAMES PAGET. (F. 224.)

Bismuth makes a useful desiccant astringent application. The sub-benzoate has been recommended by the editor as a stimulant dressing, especially in the soft chancroidal ulcers.

Boracicum Acidum has been found by Dr. WARREN GREENE, of Maine, very useful in dressing old indolent ulcers. He uses it in a glycerole or ointment. (*Boston Med. and Surg. Jour.*, 1879.)

Brominium is employed by Dr. JOHN H. BRINTON. (F. 230.)

Cadini Oleum is an excellent form of tar for local use. See Pix.

Carbo ligni, applied locally to sloughing sores, is a useful disinfectant.

Carbolicum Acidum is highly recommended. (F. 215.)

Carbonis Sulphidum is especially useful in indolent ulcers.

Chloral Hydratum, in solution, will be found a very satisfactory lotion to foul and recent ulcers. (F. 231-235.)

Chlorinii Aqua. Sloughing and foul-smelling sores may be advantageously washed with this preparation.

Cinchona. Finely powdered Peruvian bark, dusted thickly over foul, indolent, sloughing and even dangerous ulcers, and left to form a kind of poultice, has apparently promoted the healing process. (F. 229.)

Conium is often an efficient anodyne addition to ointments.

Creta Preparata is an ingredient in a number of soothing ointments. (F. 216.)

Cuprum. The sulphate of copper, in stick, solution or ointment, is an appropriate stimulant to indolent sores.

Electricity has been employed with very satisfactory results by a number of surgeons, but is limited to ulcers which will yield by moderate stimulation. (See above.)

Farina is used as an application by Mr. COWEN. (F. 219.)

Feculæ Iodidum. To clean sloughing sores Professor MARSHALL has employed successfully an iodide of starch poultice, applied cold. (For recipe to make it, see page 71.)

Fuchsin has been used in painful and foul smelling, indolent ulcers with benefit. ROSENBERG (*N. Y. Med. Record*, 1890,) recommends the following :

236. R.	Fuchsin,	gr. ʒ ^o	
	Alcohol,		
	Water,	āā	f. ʒ ss. ' M.

After washing the wound with warm water, the solution is applied on a linen cloth and kept in place for several days

Glycerinum, slightly diluted, or carbolated, makes a very good application.

Hydrargyri Bichloridum is to be used in ulcers as in other lesions as a most valuable antiseptic, especially adapted for cleansing the surfaces in dressing.

Hydrogen Peroxidum is especially valuable in profusely suppurating ulcers as a means of clearing away the pus.

Iodoformum, dusted in fine powder over spreading and painful sores, gives much relief. Dr. MANDELBAUM, of Odessa, says (*Berl. Klin. Wochenschrift*, November 10, 1878,) all ulcers of the leg, and elsewhere, can be cured by the following method : If they are very deep, with much loss of tissue, and with undermined, uneven, callous edges, they are first to be scraped away until healthy tissue is reached, with the modification of Volkmann's spoon as suggested by HEBRA ; they are then to be covered for several days with a thick layer of iodoform until fresh granulations spring up, (as they are are certain to do,) and until the

base of the ulcer has reached the level of the surrounding skin. When this point in the healing process is reached, the ulcer is to be strapped daily with equal parts of mercurial and soap plaster of rather soft consistence, and carefully and evenly applied. Shallow ulcers, covered only with pus, require no scraping, but can be at once treated with iodoform.

Massage, of the form known as *effleurage*, is often of great service in reducing the indurated edges of indolent ulcers and stimulating their reparative tendencies.

β-Naphthol has been used as a dusting powder, but it is rather irritating, and not especially beneficial.

Nitricum Acidum, diluted, is employed as a stimulating wash to the surface of unhealthy ulcers. In specific infection, it is used in its concentrated form, and is the best of escharotics.

Opium, or some of its alkaloids, is much valued as a soothing ingredient in lotions and ointments to irritable ulcers.

Pepsina has been advocated. (F. 223.)

Pix Liquida. Tar has been used with advantage in the form of ointment, in foul and indolent ulcers. It is a popular remedy for this purpose in veterinary surgery.

Plumbum. The soluble salts of lead form common ingredients in lotions for ulcers. Lead plaster is in familiar use.

Potassii Permanganas is well spoken of as a deodorant. In dilute solution it is a mild stimulant. Employed in the form of powder it acts as a gentle caustic, and may often be applied with advantage in sloughing ulcers.

Quininæ Sulphas. Dr. C. I. WILLIAMS (*Southern Practitioner*, November, 1879) recommends in old sores—

237. R.	Quininæ sulphatis,	ʒj	
	Iodoformi,	℥j.	M.
Dust on the ulcer several times daily.			

Resorcin has been used with benefit as a local application on indolent and sloughing ulcers.

Salol and *Salicylic Acid* are both used as local stimulant applications, powdered over the surface of the ulcer before applying the dressing, as—

238. R.	Salol,	1 part	
	Starch powder,	2 parts.	M.

Sodii Boras. A favorite application of Mr. SAMSON GAMGEE'S to old ulcers is—

239. R.	Sodii boratis,	℥ ss	
	Tinct. lavand. comp.,	f. ʒ jss	
	Glycerini,	f. ʒ jss	
	Aquæ,	f. ʒ vj.	M.
For local use as a lotion.			

Sulphides. Dr. RINGER says that a sore discharging a thin, watery, unhealthy ichor will, under the administration of the sulphide of calcium, speedily undergo a healthy change, the discharge becoming at first more abundant, afterwards diminishing, and throughout continuing thicker and healthier.

Sulphurosum Acidum may be used diluted as a wash.

Tannicum Acidum. Tannin, having the property of coagulating albumen, is employed largely to sores with profuse discharge and luxuriant granulations. Added to glycerine, it is a very effective dressing.

Zincum. The sulphate of zinc, as a stimulant and astringent, lessens the secretion and promotes healthier growth in ill-conditioned, free-secreting sores. The chloride, in dilute solution, is a still more energetic article.

The Elastic Bandage. As an important advance in the treatment of ulcers of the extremities, must be mentioned the elastic bandage as employed by Dr. HENRY A. MARTIN, of Boston. He applies it firmly above the ulcerated part, and is so fully convinced of its value that he says that such a bandage, *without any other means or appliance whatever*, is all that is necessary for the perfect and *permanent* cure of all curable non-specific ulcers of the leg.

Scarification. This is often employed to break up the indurated edge of ulcers, and thereby improve the circulation and nutrition of the tissues involved. It acts as a powerful stimulant to the reparative process.

VIII. LESIONS FROM HEAT AND COLD.

Burns and Scalds (Scalds of the Glottis and Larynx)—Lightning Stroke—Sun Stroke—Frost Bite and Frozen Limbs.

BURNS AND SCALDS.

MR. T. HOLMES, ENGLAND.

The treatment of burns and scalds is directed, first, to the immediate lesion; and, second, to its after consequences. At the time of the accidents, the main indications are: 1. To exclude the air from the burn and surface by some local application. 2. To allay pain. 3. To bring about reaction by the judicious use of stimulants.

The exclusion of air can be accomplished in a variety of ways. Common flour dredged on the part is a very good and handy application in superficial scorches. Carron oil (composed of equal parts of linseed oil and lime water) and oil of turpentine are valuable when the surface of the skin is quite destroyed. Probably nothing is better than swathing the part in thick layers of cotton-wool, which is prevented from sticking to the burnt surface by covering this with folds of soft linen, anointed with ceratum calaminæ or other simple ointment. After a few days, when the discharge becomes foul, this should be renewed and the wound dressed with carbolized oil, beginning with a weak solution, as:

240. R. Acid. carbolic, f. ʒj
Olei olivæ, f. ʒ iij. M,

This may be increased in strength as required. As the sloughs separate, they should be removed at once, so that the fetor be diminished.

At the time of the accident, opium should be liberally given, and brandy to the extent of bringing about a gradual reaction. Diarrhœa must be checked by opiates, and vomiting by creosote and prussic acid. Burns ought not to be dressed frequently; at the same time, the surgeon must guard against fetor and the accumulation of pus.

DR. JOHN MORRIS, OF BALTIMORE.

Various judicious suggestions are given by this writer in reference

to the immediate treatment of burns. (*The Sanitarian*, December, 1874.)

The first step is to remove the clothing carefully by cutting it from the body, and then to wrap the patient in hot blankets or large masses of cotton. To allay the pain, chloroform or ether should be administered to partial or complete unconsciousness, and opium given in full doses.

The dressing should be applied while the patient is under the influence of the anæsthetic. Dr. MORRIS condemns carron oil as useless. In bad scalds of children, he places the patient in a bed of loose *bran*, so that the child is entirely covered with it. This has the advantage of not requiring change each day; as the moist particles fall off, they can be replaced with fresh bran without disturbing the patient. He severely condemns frequent changes of dressings. As a local anæsthetic and deodorant, he has found the following to give relief to the patient:

241.	R.	Liquor. sodæ chlorinatæ,	f. 3j	
		Morphinæ sulphatis,	gr. iij	
		Aquæ,	Oj.	M.

Apply locally on soft rags.

Or the following:

242.	R.	Acidi carbolici,	f. 3j-iv	
		Morphinæ sulphatis,	gr. ij	
		Olei olivæ,	f. 3vj.	M.

Apply locally.

After the free application of one of these, the parts may be wrapped in cotton batting. For superficial burns, simple cold or warm water dressing is often enough.

For the treatment of the shock, alcoholic drinks are not advisable. The best stimulant that can possibly be given is strong, hot coffee, to which a little brandy may be added if manifestly needed.

Labarraque's solution has also been highly extolled by Prof. L. A. DUGAS, M. D., of Georgia. He states that it possesses the rare virtue in such cases of immediately arresting all pain, and also of preventing suppuration when the whole thickness of the skin has not been destroyed. From half an ounce to one ounce, to a quart of water, will be usually of the proper strength, and the affected surface should be covered with old linen, which is to be kept wet with it, and not to be removed for 24 to 48 hours, according to circumstances, as it is important to avoid tearing away the cuticle. In cold weather, and

when the burn involves a large surface, so as to render wet applications objectionable, he is in the habit of mixing the chloride with linseed oil, in the proportion of $\frac{1}{2}$ oz. or 1 oz. to 8 oz. of oil, and using this in lieu of the aqueous mixture above described. As a guide in regulating the strength of either of these prescriptions, it is sufficient to say that whenever the application gives pain instead of relief, it is too strong, and should therefore be weakened.

PROFESSOR THEODOR BILLROTH.

The treatment of burns of the first and second degree looks more toward alleviating the pain than to any more particular end.

If there are any vesicles, it is not advisable to remove the loosened epidermis, but to open the vesicle by a couple of needle punctures, and carefully press out the serum to remove the tense feeling. Numerous remedies are used whose only effect is to cover perfectly the inflamed skin. Mashed potatoes, starch and collodion are popular. The two former are soothing and agreeable, but Dr. BILLROTH has not been satisfied with collodion, as it cracks readily, and the skin in the cracks becomes sore and sensitive. (Photoxylon (p. 106.) to which a few drops of castor oil have been added is a substitute for collodion, with far less tendency to crack.)

When all three degrees of burns are combined, Professor B. particularly recommends the nitrate of silver treatment.

243. R. Argenti nitratis,
Aquæ,

gr. x
f. ℥j. M.

This to be painted over the burnt part, and compresses wet with it to be constantly applied.

At first the pain from this cauterization of the parts, denuded of epidermis, is occasionally very great; but a thin, blackish-brown crust soon forms, and the pain then ceases entirely. The treatment should be continued until the eschar is completely detached.

The healing of the wound is often very slow, requiring months. Of the remedies for promoting cicatrization, Dr. BILLROTH especially recommends the compression of the wound by strips of adhesive plaster.

In the treatment of *cicatricial contractions*, resulting from these burns, compression of the cicatricial bands by adhesive plaster is one of the most important remedies, and it should always be tried persistently before resorting to excision of the cicatrix or to plastic operations.

Where the burn is of the greater part of the body, our whole attention must at first be devoted to the general condition of the patient, and we must try to prevent collapse by the use of stimulants, such as wine, hot drinks, hot baths, ether, ammonia, etc. Professor HEBRA praises the treatment of such extensive burns by the continued warm bath, which, under proper circumstances, may be kept up for weeks.

DR. E. R. SQUIBB, OF BROOKLYN, N. Y.

This practitioner (*Druggist's Circular*, August, 1868,) believes that for burns of the second degree the best application is:

244. R. Creosoti,
Aquæ,

f. 3^{ss}
Oj.

M.

When the cuticle is not broken, he uses it of double this strength. Rags and cotton should be saturated with it, and fixed on the parts, taking care to keep them constantly moist.

PROF. ROTTENBERG, GERMANY.

This authority (*Therap. Monatshefte*, 1891) employs the following plan of treatment of burns. It is without modification particularly suited to burns of mild degree. The blisters are not laid open entirely, but are pierced with a needle and a silk thread is drawn through them and left in place. This thread has been previously rendered antiseptic by having been soaked in corrosive sublimate solution. The entire burned or scalded area is then covered with a layer of *iodoform ointment*, made by rubbing iodoform into vaseline or some other suitable vehicle, and this in turn covered with waxed paper or oiled silk, or rubber, to exclude the air as much as possible. The dressing should be renewed daily. Pain is relieved at once, and repair is not entirely by cicatrization, sound new skin being formed quite readily from remnants and from the edges of the burn.

Dr. OSTERMAYER, of Germany, quoted by the *Pittsburgh Medical Review* (*Medical News*, 1890), advocates *soziodol* for the treatment of burns. Like iodoform it possesses analgesic properties, and in addition it prevents suppuration, is odorless and non-toxic. The blisters are opened by this surgeon and the contents removed with sterilized or antiseptic cotton. At once a 10 per cent. mixture of soziodol with starch or Venetian talc is profusely dusted on, and the whole is protected by a layer of aseptic or antiseptic cotton, held in

place by a roller bandage. Repair begins quickly, and goes on without suppuration and painlessly. Scars fail to appear when the wound is treated with soziodol. It is applicable not only to burns and scalds from heat, but equally well to those from chemical agents.

DR. LEON SZUMAN, OF NORWAY.

Dr. SZUMAN (*Norwiny Lekarskie*, 1889; *Med. News*, 1890) describes his method of treating burns as follows: As soon after the injury as possible the burned surface is covered with the following ointment:

245. R.	Vaseline,	3j	
	Pulverized salicylic acid,	gr. xv-xxx	
	Cocaine hydrochlorate,	gr. ij-iv.	M.

Over the surface, thus covered, he places, first, a thick layer of iodoform or salicylic acid gauze, then a thin layer of salicylic cotton, and finally a bandage. In burns in places where the dressings are apt to be quickly soiled, they should be changed frequently, but ordinarily the dressing may be left in place for several days. If the injured surface is foul with mud, sand or other matter, it may first be washed with carron oil before the ointment is applied, and this may be used to saturate the dressing if there be much pain. When the dressing is changed, if any part of the gauze sticks to the surface it should not be torn off, but left in place to become loose when it will. Severe and extensive burns are said to heal readily and with little suppuration under such treatment.

RECLUS (*La Semaine Med.*, 1892,) suggests the following topical application:

246. R.	Iodoformi,	i	
	Acidi boracici,		
	Antipyrin,	āā	
	Unguenti petrolei,	5 50.	M.

DR. MAYLAND, OF SCOTLAND.

The following antiseptic plan of treating burns, particularly severe burns, is suggested by MAYLAND (*Glasgow Med. Jour.*, 1892). The clothing should be removed, that which is adherent being cut away. The wound should then be washed with a warm corrosive sublimate solution (1:2000), and be covered with a silk protective previously sterilized in the bichloride solution. This protective may be made of ordinary oiled silk, and should be perforated here and

there. Over this a piece of gutta-percha tissue properly sterilized is to be placed, the whole covered with sublimated gauze and secured by a bandage. The dressing should be renewed as soon as saturated with the secretions from the wound. This is, however, not as frequent as is the case with ordinary dressings, the discharges being decidedly diminished. It is claimed that healing under such care takes place rapidly and with little pain, that there is entire absence of offensive odor, that the dead tissue is quickly separated, that the resulting sore is small, and that there are relatively slight general symptoms.

Dr. O. P. BARBER, of Michigan, has suggested the following antiseptic plan (*Med. News*, 1891). The burned surface is freely irrigated with carbolized water, all the dead tissue mechanically removed, and any blisters present opened by puncture. Then gutta-percha tissue, previously kept in a carbolized solution, is carefully and completely applied over the burned surface, and an ordinary antiseptic cotton or lint dressing adjusted and held in place by a bandage. The results claimed are very flattering.

PROF. S. D. GROSS.

The favorite application of this surgeon is *white lead paint*:

247. R.	Plumbi carbonatis,	℥ ij	
	Olei lini,	q. s.	M.

To make a fluid of the consistency of thick cream.

This remedy is more particularly applicable to the milder forms of these injuries. If vesicles exist, they must be evacuated with a fine needle, and the surface thoroughly dried, or the paint will not adhere. The paint should be applied freely with a soft brush, and the dressing completed by covering the painted surface with a layer of carded cotton or old muslin, supported by a moderately firm roller. There is no danger from lead-poisoning in using this application, no matter how extensively it is applied.

DR. A. D. BINKERD, OF PENNSYLVANIA.

248. R.	Ceræ flavæ,	℥ j	
	Olei lini,	f. ℥ iij	
	Acidi tannici,	℥ j	
	Bismuthi subnitratæ,	℥ j.	

Heat the wax, add the oil, and stir; when cold, add the acid, and last the bismuth. Apply on lint or rags.

249. R.	Pulveris iodoformi,	℥ ij-iv	
	Cerati,	℥ j.	M.

A soothing anæsthetic ointment, in burns and scalds. Five or six drops of carbolic acid may be added.

250. R. Chloral hydratis, $\mathfrak{z}j$ -iss
 Glycerini, f. \mathfrak{z} ss
 Aquæ destillatæ, f. \mathfrak{z} vj. M.

A soothing application to burns, etc., when there is a fetid discharge. It smartes at first, but soon produces local anæsthesia and diminution of fetor.

MR. EDWARD KENTISH, LONDON.

The plan of treatment in severe burns recommended early in this century by this surgeon has lately been revived with much success. The injured surface is first washed with *oil of turpentine*, and then an ointment is made by thinning basilicon ointment with turpentine, which is applied to the burned surface on soft rags.

NIKOLSKY (*Deut. Med. Wochens.*, 1890,) recommends as a valuable local application to burns the following:

251. R. Tannic acid, 10
 Alcohol, 10
 Ether, 80. M.

The ether and alcohol evaporate and leave a tannic scum over the surface of the burn, which relieves the pain and promotes healing. The wound should previously have been washed with an antiseptic solution. An ordinary antiseptic dressing completes the treatment.

DR. JOHN H. BRINTON, OF PHILADELPHIA.

252. R. Aquæ calcis, f. \mathfrak{z} viij
 Olei amygdal. amar., gtt. ij-iiij. M.

Beat up f. \mathfrak{z} ij of this with \mathfrak{z} iv of well-washed lard, and apply freely over the burned surface, on soft cotton cloth, changing twice a day.

DR. MADISON MARSH, LOUISIANA.

253. R. Aluminis, $\mathfrak{z}j$
 Aquæ, f. \mathfrak{z} viij. M.

This is a saturated solution of alum. It is an excellent application to fresh burns and scalds. Cloths should be soaked in it and applied to the wound.

PROF. GORDON BUCK, M. D., OF NEW YORK.

254. R. Acaciæ pulveris, \mathfrak{z} iv
 Tragacanthæ pulveris, \mathfrak{z} ij
 Syrupi fusci, Oj
 Aquæ bullientis, q. s. M.

To make a mixture of the consistency of honey.

This mixture was long popular in some of the New York hospitals, as a local application in burns.

MR. CHARLES RICE, OF PHILADELPHIA.

255. R. Best white glue, \mathfrak{z} xv
 Cold water, Oij.
 Soften, melt, and add—
 Glycerine, f. \mathfrak{z} ij
 Carbolic acid, f. \mathfrak{z} ij.
 Heat in a water-bath.

This can be applied with a broad brush. It hardens in about two minutes, leaving a smooth, flexible, transparent skin.

SCALDS OF THE GLOTTIS AND LARYNX.

This accident is not infrequent, especially in children, from swallowing scalding fluids, or in adults from breathing flame in conflagrations, or swallowing corrosive fluids. It is dangerous, and requires the utmost attention. The peril arises from the subsequent œdema and spasm of the glottis.

Leeches should be applied frequently to the external surface of the throat, followed by large poultices. Remedies to prevent the inflammation must be energetically exhibited.

256. R. Vini antimonii, gtt. xxiv–xlviij
 Tincturæ aconiti, gtt. xij–xxiv
 Aquæ, f. \mathfrak{z} iij. M.

A teaspoonful at first every quarter of an hour, then every half hour, and later at longer intervals.

If spasm supervenes, the patient should be cautiously etherized, the mouth fully opened, and the œdematous parts around the fauces freely scarified. (Mr T. HOLMES.)

The mode of treatment in these cases advocated by Dr. BEVAN, of Dublin, is to give the patient at once small quantities of olive oil to drink, or to place in the mouth morsels of fresh, unsalted butter. The air breathed should be heavily charged with moist, warm vapor, by covering the head with a canopy, under which a steam jet should be conducted. Leeches should be applied to the sternal notch, and the following powder laid on the tongue every two hours:

257. R. Hydrarg. chlor. mitis, gr. j
 Antim. et potas. tart., gr. $\frac{1}{8}$. M.
 For a child.

The upper portion of the sternum should be covered with a blister if there arise signs of broncho-pneumonia.

The performance of tracheotomy or the employment of the intubation method may be easily justified in these cases.

NOTES ON REMEDIES.

Alumen, in strong solution or ointment, is an excellent application. (F. 253.)

Acacia. Apply a thick coating of gum arabic mucilage, and then dust well with the dry powder. This a favorite treatment in the Boston hospitals.

Argenti Nitratis. This has been lauded by many as the best of all substances in burns. The eminent surgeon, Mr. SKEY, recommends in all recent burns painting the part with :

258. R. Argenti nitratis, gr. xx
Aque, f. ʒj. M.

This alleviates the pain and diminishes the subsequent ulceration. In the sores which follow burns, the local use of the silver nitrate is often called for to hasten the healing process.

Bismuthi Subnitratis. Dr. T. G. RICHARDSON, of Louisiana, recommends sub-nitrate of bismuth, mixed with glycerine to the thickness of paint, and brushed freely upon the part.

Boracicum Acidum. This is used as follows :

259. R. Boracic acid in fine powder, 1 part
White wax, 1 part
Paraffin, 2 parts
Almond oil, 2 parts.

Melt the wax, paraffin and oil with a gentle heat; then add the acid, and continue stirring until it remains of uniform consistence. Before using, it should be reduced to a soft mass by rubbing it in a cold mortar.

Calcis Aqua, with olive or linseed oil, is a standard remedy. The famous *carron oil* is composed of equal parts of linseed oil and lime water.

Calcis Glyceritum. The following glycerite of lime has been found valuable :

260. R. Calcis, ʒj
Glycerini, f. ʒvj
Chloroformi, f. ʒj-ij. M.

For local application.

Carbolicum Acidum, in dilute solution or ointment, is a popular and valuable application.

Carbo Ligni. Powdered charcoal dusted on the burned surface is said to be an extremely soothing, disinfectant and healing application.

Cocaine has been highly commended as a local application to ease the pain of burns. (F. 245.)

Collodion, painted over light burns, subdues inflammation by protecting the injured surface from external irritants. Its use is hampered by its tendency to crack, which may be in part remedied by the addition of a few drops of castor oil to the ounce of collodion.

Creosotum, as a solution, is preferred by Dr. SQUIBB. (F. 244.)

Creta. At St. Thomas' Hospital, London, the favorite preparation for children is :

261. R.	Acidi acetici, Aquæ, Cretæ (whiting),	1 part 12 parts q. s.	M.
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Make a thick cream and apply lightly with a brush.

Ferri Sulphatis. Added in small quantities to water dressings, or to warm baths for the burnt parts, this has been found an excellent application. For a lotion, ʒj to aquæ Oj.

Fuligo Ligni. Dr. JOSEPH A. KYLE, of Ohio, writes that after an experience of thirty years, he can confidently recommend a preparation consisting of three parts of lard and two parts of soot, or equal parts, in the treatment of all scalds and burns. Pain is allayed, and the skin, after healing, remains smooth.

Gutta-percha in thin sheets has been used with the most flattering results as an adjunct in dressing, in order to keep the surface free from external influences.

Iodoform is a soothing adjunct: (F. 246.)

Oakum. Picked oakum is an excellent dressing for the suppurating sores resulting from burns. Not only does it prevent the offensive smell and hasten the healing process, but according to Mr. ROBERT L. SNOW, of London, the resulting cicatrices *do not contract*. The oakum must be wetted with cold water several times a day, and need not be changed more than once in three or four days.

Oleum Menthae, applied by pencil or cloth to the wound, gives prompt ease from pain. It may be diluted with glycerine.

Opium in some form is usually required to ease the pain in case of severe burns.

Photoxylon as a substitute for collodion is valuable, because less liable to crack.

Plumbi Acetas. Solution of acetate and subacetate of lead are valuable for their cooling and sedative properties.

Plumbi Carbonas is recommended beyond other things by Professor GROSS. (F. 247.)

Potassium permanganate is of use in cleansing the surface of a burn before application of the dressing. It should be used in solution of 2 to 5 per cent. strength.

Salicylic Acid has been used with benefit in the dressings of burns and scalds.

Sodii Bicarbonas. There is hardly any better remedy for recent scalds and burns of the first and second degree than to dust the part thoroughly with finely powdered bicarbonate of soda. The pain is promptly

allayed and healing greatly hastened. Other neutral alkalies might answer as well.

Sodæ Chlorinatae Liquor is highly praised by Drs. MORRIS and DUGAS. (F. 241.)

Soziodol, a new antiseptic, has been highly praised as a topical application. (p. 267.)

Tannic acid is used to form a coating with the albumen of the burned surface in order to act as a protective. (p. 270.)

Terebinthinæ Oleum. Kentish ointment, *linimentum terebinthinæ*, U. S. Ph., enjoys a just reputation in the treatment of burns.

Unguentum Petrolei is a soothing application.

Zinci Oxidum, in ointment, especially with carbolic acid added in small quantity, is a soothing and healing application.

LIGHTNING STROKE.

A stroke of lightning produces the effect of a shock and a burn. The indications for the treatment of the first of these are thus laid down by Sir BENJAMIN BRODIE: "Expose the body to a moderate warmth, so as to prevent the loss of animal heat, to which it is always liable when the functions of the brain are suspended or impaired; and inflate the lungs, so as to imitate the natural respiration as nearly as possible."

If, after recovery from the immediate effects, there remains a partial loss of cerebral power, Mr. T. HOLMES recommends galvanism in a mild form, continued for a very long time, combined with small does of strychnia and other tonics.

The burns should be treated in the same manner as those from any other cause.

B. W. RICHARDSON, M. D., LONDON.

In severe cases of lightning stroke, Dr. RICHARDSON urgently advocates immediate bleeding from the arm. He writes as follows (*Medical Times and Gazette*, August, 1874):

"Our forefathers were satisfied as to the good effects of blood-letting in cases of lightning-shock. Dr. MACAULAY, an able naval surgeon of last-century education, has left on record the history of a man who, struck down on deck by lightning, and being entirely insensible, was brought to consciousness and recovery by the rapid

extraction of over forty ounces of blood. I have not myself had the opportunity of treating a case of lightning-shock in the human subject, but an experience of another kind bears directly upon the value of the remedy in such cases. In experimenting with the great induction coil at the Polytechnic College, I tried to kill large animals—sheep—painlessly, by an electrical discharge derived from a Leyden battery set ‘in cascade,’ and presenting ninety-six feet of surface. The shock is identical with the fatal, intense shock of lightning, and by passing it once through the body of a sheep, it rendered the animal instantaneously unconscious—to all appearance dead, and, as I found by one line of experiment, actually dead, if nothing were done to the animal. But in another line of experiment the animals, so soon as they were stricken, were removed by the butcher, and were subjected to division of the vessels of the neck in the usual manner of killing in the slaughter-house. At first blood flowed very slowly from the operation, but in a short time the current became freer; and as it became free, the phenomena of active life, previously suspended in the animals, returned. There was return of consciousness, of motion, of struggle for liberty, and all those proofs of life that an animal passes through, previous to convulsion, when it is submitted to slaughter without shock.

“If we connect the experience of those of our predecessors who have successfully employed blood-letting for the cure of lightning stroke with the experimental facts I have here adduced, the inference is, I think, as fair as inference can be, that blood-letting is *the remedy* for the effects of the shock of lightning.”

Dr. THOMAS G. MORTON, in his article upon the subject, in the *International Encyclopædia of Surgery*, states that the shock from lightning stroke should be treated just as shock from any other cause, and advises hypodermic injections of morphia and of the cardiac stimulants in guarded doses.

SUNSTROKE (THERMIC FEVER, HEAT FEVER).

DR. FREDERICK A. PACKARD, OF PHILADELPHIA.

Dr. PACKARD, whose experience with thermic fever in the wards of Pennsylvania Hospital has been extensive, has contributed a valuable

paper upon the subject (*American Jour. of Med. Sciences*, 1888). The patient, as soon as brought into the hospital, is removed to a canvas tent in the hospital yard in a shady spot, the open air being especially adapted for location of these cases. The stone pavement of the yard is easily kept cool by liberal use of the hose, and is another element to be taken into consideration, and the constant circulation of air can be kept up by mechanical means, and, too, by the cooling of the locality and immediate vicinity by water. The patient is placed upon a waterproof bed, his clothing removed as rapidly as possible, and a thermometer introduced into the rectum. Ice is at once packed about the body and extremities, and as a rule $\mathfrak{m}\text{xv}$ or xx of the tincture of digitalis administered hypodermically. Every seven minutes the thermometer is removed and the temperature noted. The icing is continued until the temperature falls to 104°F. ; then the patient is dried, placed on a clean bed with an ice-cap to his head, and in favorable cases the temperature continues to fall to normal. It has been found in the practice of this hospital that if the icing be continued after the temperature has fallen below 104°F. , the subsequent fall is apt to be too great and sudden and requires the opposite treatment, external heat and stimulants—a state of affairs certainly undesirable. The above applies as a general mode to cases with temperature above $106\frac{2}{3}^{\circ}\text{F.}$ The cases with temperature below that point are stripped and liberally sponged with a mixture of one part of alcohol and four parts of iced water, an ice-cap being applied to the head, this being found sufficiently active treatment for cases with a temperature below 106°F. Subsequent rises of temperature are treated in precisely the same manner as the primary hyperpyrexia.

When convulsions are present after the temperature has been lowered to a considerable extent, morphia is used, usually with good effect. Where respiration and pulse do not improve in correspondence with the fall of temperature, bleeding is practised in spite of the feeble pulse, and is almost always followed by quieter, fuller respirations with a soft and steady pulse. Where the face is congested and the body livid, the pupils contracted, breathing shallow and stertorous, and the heart's action labored (as determined by auscultation) bleeding is regularly employed—first by wet cups behind the ears, and if this makes no impression, or if little blood can be withdrawn in this manner, then by venesection of the median basilic, to the extent of 12, 16, or more ounces.

It has been suggested by some writers that every ambulance and patrol wagon in cities be provided with ice and a pail of cold water during the hot season, so that treatment such as the above may be instituted as early possible; and doubtless where such a suggestion has been carried out it has been productive of great good. Dr. MORRIS J. LEWIS (*Med. and Surgical Reporter*, 1888) suggests that every physician should carry upon his person during the period of warm weather a watery solution of *antipyrin* for hypodermic use in these cases:

262. R. Antipyrin,
Aque destillatæ,

3ij
f. ʒ ss. M.

Twenty drops to be injected hypodermically as early in the course of the case as possible.

THE PENNSYLVANIA STATE BOARD OF HEALTH

Has issued the following circular in relation to sunstroke for perusal by the laity:

"This dangerous illness is caused by excessive heat of the blood (from 100° to 110° F.), which produces great depression of the nervous system. It occurs during the hot season of the year, and usually to those exposed to the hot sun, but it sometimes occurs at night, and also to those exposed to great heat in glass-works, laundries, furnaces, bakeries, iron foundries and the engine-rooms of steamships. It is largely confined to the hot, close streets and passages of the cities, but it is not unknown in the country. Those habituated to the use of alcohol and the debilitated are especially predisposed to attacks.

"Dark, close-fitting clothing and such as compresses the chest and neck should be avoided during the heated term. For those obliged to labor in the sun, light clothing and a straw or light felt hat, permitting free circulation of air, are preferable.

"On very hot days, one should drink frequently, but in small quantities. A large quantity of any iced drink entering the stomach at one time is injurious.

"Cool water, into which oatmeal has been stirred, is a safe and refreshing drink. Water should not be drunk in considerable quantities at a temperature lower than that of spring-water, namely 56° F. Immediate death is often caused by 'ice-cold' drinks. The immoderate use of alcoholic beverages is also dangerous.

"The sleeping-room should be freely ventilated and cool. Constipation of the bowels should be avoided. When overheated, work

slowly, frequently cooling the head, chest and back with cold water. Keep a wet cloth or some green leaves in the hat on the head, frequently wetting them with cold water. When, on a very hot day, the skin becomes dry and uncomfortably hot, a burning sensation is felt in the head, and the face is flushed and the eyes blood-shot, with a frequent tendency to urinate, the person should immediately quit work, retire to a cool place and rest in quietness; and if not speedily relieved of the sensation of heat, take a cold bath.

"The attack may be very sudden and take the form of delirium, in which the patient rushes wildly about and may attack those around him; or he may become weak and sink to the ground as if in a fainting spell or stupor. Loss of consciousness and mental disturbance may be only partial. Nausea or sickness of the stomach often precedes the onset. Convulsions may occur.

"Sunstroke must be carefully distinguished from heat-exhaustion, in which the general symptoms are similar to those of sunstroke, but the bodily temperature is below the normal. The difference can be at once recognized by feeling the skin underneath the clothing: in sunstroke the skin feels burning hot; in heat-exhaustion it is cold.

"*Treatment*.—1. Carry the patient into a cool and shaded place, where there is plenty of pure, fresh air.

"2. Strip his clothing to the waist, and place him in the recumbent position.

"3. Pour cold water (ice-water is best) upon his head and chest until consciousness returns. The points at which the blood can most effectually be cooled are the wrists, the temples, and the ears, because at those points it approaches the surface more nearly in considerable quantities. Ice may be applied to the head and chest and rubbed over the body, but if the skin is cold no ice should be applied. Internally, small doses of brandy may with success be administered; but in all cases of sunstroke, the patient should, as soon as possible, be placed in charge of a competent physician.

"The patient should do no mental work for some months, and should keep free from all excitement. Persons who have suffered from sunstroke are liable to a second attack. Insanity, in some of its varied forms, frequently follows sunstroke.

"In heat-exhaustion give alcoholic stimulants and place the patient in a hot bath, so as to raise the bodily temperature."

As a document for popular distribution, of course, the above is valuable, although to the professional it is at times rather general

and inexact. Nevertheless, the general outline of the treatment and prophylaxis are all that can be required,

DR. WALLER, INDIA.

Undoubtedly one of the most important remedial measures in sunstroke is that first suggested, we believe, by the above-named surgeon, to wit, the *hypodermic injection of quinine*. His formula is the following:

263. R.	Quininae sulphatis,	gr. x	
	Acid. sulph. dilut.,	℥x	
	Aquæ,	q. s. ad ℥c.	M.

To be used in three injections, at short intervals, until reaction supervenes.

The value of this application is fully borne out by the testimony of many British surgeons in India, besides the authority of Dr. WALLER, (*India Medical Gazette*, July, 1869,) who has had a large experience in India, as a specific in this affection, whether the skin is hot and dry or cool and moist, and whether or not muscular spasm be present. It rapidly diminishes the stupor and spasm, restores consciousness, and cures the attack. He gives quinine at every stage of the attack, either by the mouth (gr. xx at first, and gr. x every successive hour,) or, if the patient be unable to swallow, hypodermically, (gr. iss injected in each arm.)

For the intense and persistent headaches which follow sunstrokes, *blistering* to the nape of the neck and full doses of *bromide of potassium* have proved most useful. Where the symptoms point to slow inflammatory action at the roots of the pneumogastric, a gentle course of *mercury* is indicated. The confusion, dullness of mind, loss of memory and extreme nervousness, which are some of the distressing sequelæ of sunstroke, are, according to Dr. J. C. PETERS, most successfully combated by the free use of *dilute phosphoric acid*.

DR. THOMAS G. HERRON, OF CINCINNATI.

The treatment pursued by this physician is by *hot water*. (*Medical and Surgical Reporter*, October, 1868.) He applies very warm water to the head, by large wet towels, frequently changed, and pours the water, hot as the hand can bear it, freely over the head and neck. The feet should also be placed in hot salt water, and moderate stimulation be practiced as soon as the patient can swallow.

Dr. HERRON claims that one noticeable feature attends these cases, to wit, that with returning strength the vigor and activity of the mind

and memory are preserved, and those mental impairments, which so frequently attend recovery under the cold-water treatment, are not noticed.

A writer in the *Canada Lancet*, August, 1878, says: "As the three most urgent wants in sunstroke are the cooling of the body, increase of perspiration, and removal of listlessness and oppression, it will at once be evident that upon no hypothesis are alcoholic stimulants admissible, but hot applications to the head, hydrobromic acid, bromide of ammonia, and copious draughts of hot infusion of tea."

DR. HENRY HARTSHORNE, OF PHILADELPHIA.

This writer considers it important to distinguish between *heat apoplexy* and *heat exhaustion*. For the former, cupping or leeching the back of the neck or behind the ears should generally be the first remedy, after the application of ice or iced water freely to the head. The head and shoulders should be kept raised. A purgative enema should be administered, and sinapisms applied to the lower limbs.

Heat exhaustion requires different treatment. Local depletion should be avoided. Cold to the head and body should be alternated with revulsives (as sinapisms) to the epigastrium, spine and limbs. Syncope must be combated with ammonia. Where restlessness is a prominent symptom, the hypodermic use of morphia is called for.

SIR JOSEPH FAYRER, K. C. S. I.

The rules laid down by Sir JOSEPH FAYRER, K. C. S. I., and quoted in the *British Medical Journal*, August, 1876, may be briefly summarized thus: First, removal to cooler locality, the cold douche (but not too much prolonged), or the administration of stimulants, and in general, as for syncope from other sources. Second, where the person is struck down suddenly by a hot sun, the patient should be removed into the shade, and a cold douche of water allowed to fall in a stream on the head or body, for the object of reducing the temperature of the overheated centres, and to rouse them into action. Third, mustard plasters and purgative enemata may be useful. Fourth, should the recovery be imperfect, other treatment may be necessary, according to indications. In cases of thermic fever, bleeding should be avoided, good results being produced by the hypodermic injection of morphia and of quinine, by their influence on the vaso-motor nerves, and their power in retarding tissue change.

The most severe symptoms having subsided, the febrile condition that follows should be treated by salines and aperients, with mild diet. If meningitis set in, iodide of potassium and counter-irritants may be used to advantage. In every case removal to a cooler climate is essential, and the sufferer should not, for a long period at least, return to a hot or tropical climate. Undue exposure to heat, work, mental anxiety or stimulants should be carefully guarded against.

The treatment recommended by Dr. C. BLISS (*Medical Record*, N. Y.) is similar in most respects, but there are one or two points worthy of note—for instance, that a condition necessary to the success of any plan or treatment is that it must be applied before the patient's temperature has reached 108° or 109° F. The doctor advocates the free use of water at its ordinary temperature in preference to ice, and when consciousness is restored, the patient should be dried with gentle friction, placed in bed, and covered with a light blanket; light liquid diets and saline aperients, if required.

PROF. WILLIAM AITKEN, M. D., EDINBURGH.

This writer recommends the following line of treatment of Dr. BARCLAY:

In the class of cases in which death tends to occur suddenly, from *syncope*, there is little opportunity afforded for relief; but the measures indicated are: the *cold douche*; keeping the surface wet and exposed to a current of air, or assiduously fanned; exclusion of light as far as possible; the immediate employment of stimulants, external and internal, by the rectum as well as by the mouth. *Depletory measures of any kind are not to be thought of.*

In the less-rapidly decisive cases, prompt treatment is of the greatest use, while delay is fraught with the greatest danger. The patient must be immediately stripped of his outer clothing, placed in a semi-recumbent position, and the cold douche applied, from a height of three or four feet, over his head and along his spine and chest, while his extremities are sponged with cold water. Relaxation of the pupil is the first favorable symptom under this treatment, which may require to be repeated several times, on account of returning insensibility. If there is any evidence of failure of the pulse, this treatment must be discontinued, for application of cold to the head is then all that can be borne. The hair is to be cut short as soon as possible, and a blister applied to the nape of the neck. When the first

violence of the attack is subdued, increasing confidence in the ultimate result may be indulged in so soon as vesication takes place; and in cases where insensibility recurs after an interval of ten or twelve hours, it may be removed by the application of a second blister to the vertex. A blister may also be applied along the spine in the worst cases. Stimulation by the *electro-galvanic current*, with the moist sponges applied along the sides of the neck, chest and epigastrium, ought also to be employed. *Sinapisms* ought generally to be applied to the extremities and to the chest or sides.

In cases where the breathing is much oppressed, and the bronchial tubes loaded with mucus, the patient should be turned occasionally over on his face and side.

In the convulsive form of the disease, where the greatest irritability of the nervous system prevails, the douche is found to be inadmissible, from the agony which it occasions. In such cases, Dr. BARCLAY has found great benefit from the inhalation of *chloroform*. Great care is necessary in its employment, and the cases in which it is indicated are rare.

Dr. A. P. MERRILL, of New York, and others, have recommended the use of *chloroform* internally.

DR. WHITEHILL, OF ST. LOUIS.

This surgeon has had a large experience with sunstroke, having seen as many as fifty cases in a single day during a forced military march in 1863. (*St. Louis Medical Archives*, September, 1868.)

The treatment found most successful was *cold* to the head and chest, friction of the extremities and the internal administration of stimulants, such as brandy and ammonia. In his own case, the nausea and vomiting were relieved by full draughts of strong green tea and Rhenish wine. In all cases, a most important part of the treatment was to place the patient in the recumbent position in the shade, where there was a free circulation of air, and at the same time disencumber him of everything that could in any wise interfere with either circulation or respiration. Under this treatment every case had recovered.

W. C. MACLEAN, M. D., LONDON.

When blood-letting was the rule for sunstroke, recovery was the rare exception. There is now great unanimity of opinion on the treatment, and the lancet has no place in it. At the earliest possi-

ble moment, let the sufferer be carried to the nearest shade, stripped, and *cold water assiduously dashed over the head, neck and chest*. If this be effectually and quickly done, the powerful impression on the cutaneous nerves will soon re-establish respiration, at first by gasps and catches, soon in a more regular and tranquil manner. It will also reduce the heat of skin. It may be required to be done again and again; in hospital it may be necessary to envelop the patient in a *wet sheet*, and to ply the fan or punkah over him vigorously, until the skin is reduced to a more natural temperature. The patient should be encouraged to *drink* freely; if vomiting follows, it will often aid in relieving the congestion of the lungs. The douche, used as above described, is a powerful remedy, and, as Dr. ABERCROMBIE long since pointed out, it may be abused, particularly if it is applied too long to a shaven scalp. MOREHEAD also cautions us against its prolonged use in a routine way when the skin is cold and clammy and the respiration sighing; under such circumstances we must restrict ourselves to dashing water over the face and chest. When the heat of the skin is excessive, we may avail ourselves, if ice be at hand, of Dr. PARKE'S suggestion, and give an *enema of ice-cold water*. We should apply *ammonia*, with the usual caution, now and then, to the nostrils; the bowels being always constipated, the sooner they are relieved the better, by the use of purgatives and enemata. The occurrence of moderate diarrhœa seems to favor recovery. Support and a judicious use of stimulants must not be neglected. If sensibility be not restored and maintained by the douche, a *blister* should be applied at once to the nape, and, if needs be, to the shaven head. There is much unanimity as to the good effects of this measure. Dr. BARCLAY has found chloroform inhalation useful in a convulsive form of the disease, attended with extreme nervous irritability, a class of cases in which the douche is inadmissible from the agony it occasions. In some cases life was saved by this remedy; in all it was prolonged.

Treatment of the Sequelæ.—Great attention to the function of the skin forms an essential part of the treatment of all the varieties of sequelæ of sunstroke, for it is impaired in all. Frictions, bathing, exercise in the open air, are beneficial. When the headache is not fixed, but shifting, it will often be found to depend on a weak condition of the digestive organs, and careful treatment, suited to the particular features of each individual case, is required.

NOTES ON REMEDIES.

Apomorphina. Drs. TOMLINSON and MURPHY (*Indian Med. Gazette*, November, 1879,) call attention to the value of hydrochlorate of apomorphia in the treatment of cases of sunstroke. In three very severe cases the drug was administered as soon as possible after the admission of the patient to the hospital, $\frac{1}{4}$ gr. being sufficient to produce the desired emesis in two of the cases, and all three recovered rapidly.

Antipyrine is suggested by Dr. LEWIS (p. 277) as a remedy to be administered hypodermically and at once.

Chloroformum, internally and by inhalation, has been recommended. (See page, 282.)

Morphina, hypodermically, in the dose of gr. $\frac{1}{4}$, has been given with success by Dr. JAMES H. HUTCHINSON, in cases marked by nervous symptoms, such as convulsions, jactitation, delirium and general excitement.

Oxygen by inhalation has been recommended in heat-stroke.

Quinine Sulphas is regarded by the British surgeons in India as the most efficient of all remedies in sunstroke. (See above, page 279.)

Water, freely drunk, cold, is beneficial, as well as its use by free affusion.

Stimulants are useful by the rectum and mouth.

Blood-letting is rarely indicated, and often very dangerous.

EXTERNAL REMEDIES.

Cantharis. A blister to the nape, or to the shaven head, produces excellent results if insensibility continue.

Enemata of ice-cold water have been advised.

Frigus. The application of cold to the general surface of the body, by stripping the patient and steadily rubbing the entire skin with large pieces of ice, keeping at the same time pieces in each axilla, is a method of treatment employed at the Pennsylvania Hospital with success. (*Pennsylvania Hospital Reports*, 1858, p. 380.) Iced wine and water are given internally. Dashing cold water over the head, neck and chest is excellent practice.

FROST-BITE AND FROZEN LIMBS.

The successful treatment of these effects of cold demands the utmost judgment and skill on the part of the surgeon. It is sharply divided into: first, the immediate treatment; and, second, the treatment of the reaction.

A person frozen or frost-bitten should be placed in a *cold* room,

and the part immersed in ice-cold water, or gently and carefully rubbed with snow or pieces of ice. The skin should on no account be chafed or broken by these frictions. The great point is to restore the circulation *gradually*, and from half an hour to four hours must be expended in doing this, according to the severity of the effects of the exposure.

No matter how carefully it is done, there is apt, in severe cases, to remain a capillary stasis, manifested by a bluish color of the surface. This should be met by *vertical suspension of the limb*, and gentle friction from the extremities toward the heart, so as to diminish the venous stagnation.

After reaction has commenced, the treatment consists in endeavoring to prevent the inflammation from running to such an extent as to induce sloughing of the structure. The necessity no longer exists for keeping the patient in a cool room. The part should be placed in an easy and elevated position, lightly covered, and slightly-stimulating lotions applied. If local reaction threatens to be severe, painting the part with the compound *tincture of iodine* has been found most serviceable. If vesicles appear, they should be opened by small punctures, and lint applied, spread with a mixture of equal parts of lime-water and cod-liver oil, which has the effect of relieving the burning and smarting sensation, probably by protecting the ulcerated surface from the action of the atmosphere.

Should the part lose its sensibility, become colder, assume a purplish, mottled or greenish-black hue, vesicles filled with *dark fluid* rise upon the surface, and the swelling, at first hard and tense, put on a doughy character, then we have gangrene to deal with, and should treat it accordingly by mild local antiphlogistic treatment; and if there is much local tension, by free incisions. When fetor appears, it should be diminished by antiseptic applications, such as carbolic acid, the chlorides, and charcoal. If the gangrenous parts are large, these substances may be applied in the form of solution, or the charcoal may be dusted upon the part; if small, they may be used in poultices.

The sloughs should not be pulled away, nor should stimulants be applied to the living tissues, unless the sloughs do not readily separate; but diluted balsam of Peru, very dilute nitric acid or opiate lotions, may be applied. Parts quite dead, but that do not separate readily, such as tendons, ligaments and bone, may be cut off. But nature should be allowed to *eliminate all small parts*, such as fingers

and toes. Amputation may be performed where the part involved is large, as an arm or leg.

Of the numerous applications to *frost-bite*, *chilblain* or *pernio*, Dr. S. D. GROSS prefers the dilute tincture of iodine. In obstinate cases he has found great advantage from blistering with cantharidal collodion.

Mr. FERGUS, of Scotland, recommends the following, one application having usually proved sufficient in his hands :

264. R.	Acidi sulphurosi,	f. ʒ iij	
	Glycerini,		
	Aquæ,	āā f. ʒ j.	M.
For a lotion.			

It should be applied thoroughly with a camel's-hair brush, and is especially indicated in the itching, burning stage of the complaint.

PROF. THEODOR BILLROTH.

In the treatment of chilblains, regard must be had to constitution and occupation. Chlorosis and menstrual disturbance in women predispose to them. Employments requiring frequent change of temperature have the same effect. It is usually difficult to combat these causes, hence we are chiefly limited to local remedies. Of the many recommended, Dr. BILLROTH has himself tested satisfactorily the effect of the following, one or the other of which will generally be found effective in removing this troublesome condition :

265. R.	Hydrargyri ammoniati,	ʒ j	
	Adipis,	ʒ j.	M.
Apply night and morning.			
266. R.	Acidi nitrici,	f. ʒ j	
	Aquæ cinnamomi,	f. ʒ iv.	M.
For a local application; the part to be painted twice daily.			
267. R.	Argenti nitratis,	gr. x	
	Aquæ,	f. ʒ j.	M.
For painting the frost-bite.			

Friction with fresh lemon juice also answers. Hand or foot-baths with muriatic acid (about f. ʒss-ij to a foot-bath, used for ten minutes,) and washing with infusion of mustard seed, are also celebrated. If the chilblains open on the top, they may be dressed with an ointment of silver nitrate.

268. R.	Argenti nitratis,	gr. viij	
	Adipis,	ʒ j.	M.
For an ointment.			

The surgeon to the Austrian polar expedition in 1874, Dr. KEPSES, used the following with satisfactory results :

269. R.	Iodinii,	4	
	Etheris sulphurici,	3o	
	Collodii,	100.	M.
By weight. Use locally by painting.			

Another iodine mixture is the following :

270. R.	Acidi tannici,	℥j	
	Aquæ,	Oj.	
Add,			
	Iodinii,	℥iv	
	Alcoholis,	q. s. to dissolve.	
Mix and add,			
	Aquæ,	Oj.	M.

This mixture is to be placed over a slow fire and gradually warmed, while the frosted part is immersed and retained in it so long as it can be borne.

The following formula is quoted by the *Weekly Medical Review*, 1890, as used by Dr. MORROW for chilblains :

271. R.	Acidi carbolici,	f. ℥j	
	Tincturæ iodinii,	f. ℥ij	
	Acidi tannici,	℥i	
	Cerati,	℥iij.	M.

Apply to the affected parts two or three times daily.

DRS. BROcq AND BESNIER, FRANCE.

The *Medical News*, 1891, quotes the following treatment for chilblains, attributed to the above gentlemen. When the chilblains have advanced to suppuration, the parts are first to be washed perfectly clean and then the following applied :

272. R.	Aluminis,		
	Sodii biboratis,	āā	℥j
	Aquæ rosæ,		f. ℥ viij. M.

The affected parts are bathed well with this, or a solution of nitrate of silver (1 : 150) is painted over the surface. If the diseased condition is slow in healing and needs stimulation, these physicians employ :

273. R.	Spiritus camphoræ,	f. ℥ iiss	
	Tincturæ cantharidum,	f. ℥ ss-j.	M.

Where the ulceration is very severe and amounts to sloughing, the parts should be washed thoroughly daily with a solution of bichloride of mercury (1 : 2000) or a solution of common salt.

Prof. BROcq is stated (*Form. de la Faculté Méd. de Paris*, Steinheil) to employ the following internal treatment in cases of chilblains:

- | | | | |
|---------|------------------------------|---------------------|----|
| 274. R. | Quininæ sulphatis, | gr. xvj | |
| | Extracti ergoti aqueosi, | gr. vij | |
| | Pulveris digitalis, | gr. iss | |
| | Pulveris belladonnæ radicis, | gr. $\frac{3}{4}$. | M. |
- Make of this 40 pills. Give three pills a day for one month or six weeks.

LIEBRICH, quoted by the *Medical News*, 1891, recommends the following wash as a prophylactic against chilblains:

- | | | | |
|---------|------------------|----|-------------------------|
| 275. R. | Aluminis, | | |
| | Sodii biboratis, | āā | gr. lxxv |
| | Aquæ rosæ, | | f. $\frac{3}{4}$ ix. M. |

He also advises either of the following ointments:

- | | | | |
|---------|-------------------|------------------|----|
| 276. R. | Sodii biboratis, | gr. lxxx | |
| | Cerati simplicis, | $\frac{3}{4}$ j. | M. |

Or,

- | | | | |
|---------|------------------|---------------------|----|
| 277. R. | Camphorated oil, | f. $\frac{3}{4}$ ij | |
| | Lanolin, | $\frac{3}{4}$ iij. | M. |

PROF. CAZENAVE, OF PARIS.

- | | | | |
|---------|-----------------------|------------------|----|
| 278. R. | Hydrargyri ammoniati, | gr. ivss | |
| | Chloroformi, | m. v | |
| | Cerati, | $\frac{3}{4}$ j. | M. |

Apply morning and evening. If the swelling be considerable, and if the chilblains are ulcerated, cover with chamomile cataplasms, and dress with opiated cerate.

PROF. A. GIACOMINI, UNIVERSITY OF PADUA.

- | | | | |
|---------|--------------------|----------------------|----|
| 279. R. | Plumbi acetatis, | $\frac{3}{4}$ j | |
| | Adipis, | $\frac{3}{4}$ j | |
| | Aquæ lauro-cerasi, | f. $\frac{3}{4}$ ij. | M. |

A useful pomade, applied morning and evening, to chilblains.

Other applications which have been commended by various authors are as follows:

- | | | | |
|---------|-----------|-------------------|----|
| 280. R. | Ichthyol, | $\frac{3}{4}$ j | |
| | Lanolin, | $\frac{3}{4}$ ss. | M. |

Sig.—Apply several times daily.

- | | | | |
|---------|---------------------------|-----------------|----|
| 281. R. | Tincturæ opii, | | |
| | Tincturæ croci, | | |
| | Spiritus ætheris nitrici, | partes equales. | M. |

Apply locally, by brushing on the parts.

- | | | | |
|---------|-------------------|----------------------|----|
| 282. R. | Camphoræ, | ℥iv | |
| | Alcoholis diluti, | f. $\frac{3}{4}$ iij | |
| | Glycerini, | f. $\frac{3}{4}$ v. | M. |

Apply several times a day, to non-ulcerated chilblains.

283. R. Extracti opii, gr. iij
Extracti krameriaë, gr. xv
Glycerini, f. 3 ijss
Saponis, 3 ijss. M.
To be rubbed on morning and evening.
284. R. Aluminii et potassii sulphatis, 3 ij
Aceti, āā f. 3 vj. M.
Alcoholis diluti,
To be applied morning and evening, on non-ulcerated chilblains.
285. R. Acidi muriatici diluti, f. 3 ijss
Balsami Peruviani, f. 3 ss
Spermaceti, 3 j
Cerae albae, 3 ss
Olei amygdalæ dulcis, f. 3 j. M.
286. R. Tincturæ benzoini, f. 3 j
Glycerini, f. 3 ij
Olei lini, f. 3 ss
Cerati, 3 ij
Spiritus lavandulæ, ℥xx. M.
Mix with care. To be used to anoint, morning and evening, ulcerated chilblains.

The following is intended for *suppurated frost-bites* :

287. R. Glycerini bullientis, f. 3 j.
Acidi salicylici, 3 ij. M.
Apply a thin coating of this solution to the sore with a small brush, then cover with a pledget of cotton, which is to be kept in place with adhesive plaster. If the suppuration is profuse, change the dressing every day; in the contrary case, every three or four days.

PROF. JAMES SYME, F. R. S. E.

288. R. Tincturæ saponis cum opii, f. 3 vj.
Tincturæ cantharidis, f. 3 j. M.
For an embrocation.

This should be applied to the chilblain, and the part well protected from cold.

The ulcer of chilblain presents the appearance of a smooth, superficial excavation, with thick white edges and a peculiar viscid, slimy discharge. It heals most readily under the application of the *unguentum hydrargyri rubri*.

NOTES ON REMEDIES.

Alumen, in solution or ointment, is useful.

Balsamum Peruvianum is a useful adjunct to ointments for broken chilblains.

Benzoin. Compound tincture of benzoin often relieves the irritation of frost-bites.

Borax enters into the lotions and ointments of a number of practitioners in treatment of *pernio*.

Brassica. Cabbage leaves are a popular domestic remedy for chilblains.

Camphora, mixed with simple cerate, is a soothing application.

Capsicum. The tincture may be advantageously painted over unbroken chilblains. The celebrated "DE RHÉIMS' plaster" for chilblains is prepared as follows :

- | | | |
|---------|----------------------------------|-------|
| 289. R. | <i>Capsicum</i> pods, | ℥j |
| | Strong alcohol, | f℥ij. |
| | Macerate several days, then add, | |
| | Mucilage of acacia, | f℥ij. |
- Stir well, and brush over sheets of silk or tissue-paper. Apply like court-plaster to unbroken chilblains. It speedily relieves itching and pain.

Carbolicum acidum, as ointment, is often efficacious.

Creosotum. Creosote ointment is valuable to allay the obstinate itching and heat.

Ferri Chloridi Tinctura is an admirable astringent for *pernio*.

Galla. The following formula for Dr. VALENTINE MOIT's remedy is given in the *Proceedings of the Medical Society of the County of Kings*, 1879 :

- | | | | |
|---------|----------------------------------|--------|----|
| 290. R. | Beef's gall, | f.℥iv | |
| | Ol. terebinth., | f.℥iv | |
| | Spts. vini. rect., 90 per cent., | f.℥iss | |
| | Tinct. opii, | f.℥j. | M. |

Hydrargyrum Ammoniatum has been employed. (F. 265, 278.)

Ichthyol is recommended by some as a local application for chilblains.

Iodinium. Tincture or compound tincture of iodine is the most popular and perhaps the most generally efficient local application to the unbroken skin in frost-bite. The ointment is also employed.

Iodoformum.

- | | | | |
|---------|---------------------|--------|----|
| 291. R. | Iodoformi, | ℥ij | |
| | Extracti conii, | ℥j | |
| | Acidi carbolic, | gtt. x | |
| | Unguenti aquæ rosæ, | ℥j. | M. |
- Spread on lint, and apply to the parts twice daily.

Magnesii Sulphas. Dr. R. E. HOWARD (*Medical Herald*, November, 1879,) recommends a *saturated solution of sulphate of magnesium*, applied on lint, and small doses of it internally. In a severe burn from concentrated lye, he says he never saw a remedy act more promptly and satisfactorily.

Plumbi Acetas. GOULARD's cerate or lotion is particularly useful in the early stages.

Querci Cortex. The popular reputation of oak bark is owing to the tannin it contains.

Sulphurosum Acidum is highly praised by Mr. FERGUS.

Tannicum Acidum. This astringent is called for in the second stage, when the inflammatory symptoms have subsided.

Veratrum viride, as the diluted tincture, is recommended by Dr. HOWE as a local application to chilblains. He has obtained very satisfactory results from its employment.

IX. DISEASES OF THE SKIN.

General Therapeutics of Skin Diseases—Acne—Alopecia—Eczema—Erythema—Favus—Herpes—Impetigo—Lepra—Lichen—Lupus—Phtheiriasis (Pediculi)—Pityriasis (Seborrhea)—Prurigo—Pruritus—Psoriasis—Rhus Poisoning—Scabies—Sycosis (Mentagra, Barber's Itch)—Tinea (Ringworm)—Urticaria.

GENERAL THERAPEUTICS OF SKIN DISEASES.

DR. LOUIS A. DUHRING, OF PHILADELPHIA.*

Both constitutional and local remedies are generally necessary in the treatment of diseases of the skin.

Among *constitutional* measures, much is gained by a well-ordered *hygiene*, out-door exercise, cleanliness, and often by change of climate. A well-regulated and suitable *diet* must be looked to. Of medicinal agents, *cod-liver oil* is especially useful when the general health is run down. The dose should always be liberal—from a teaspoonful to a half ounce or more. The preparations of *iron* are given with particular benefit in diseases dependent upon chlorosis, and in exudative diseases connected with general impoverishment, as in certain forms of eczema, psoriasis and the like. *Quinine* is of particular value in the neuroses (dermatalgia, pruritus,) and in other diseases complicated by a well-defined nervous element. *Arsenic* is the most valuable of all remedies in the treatment of a number of skin diseases, especially in those involving the most superficial part of the skin. Its action is slow, weeks and months being required to produce its effects. It should never be given in the acute inflammatory stage of any disease of the skin, nor where there is great heat, burning, intense itching, or rapid cell change. The most desirable form for ordinary use is Fowler's solution. It may also be given in pill form, as in the "Asiatic pill," a modified and improved formula of which is:

292. R.	Acidi arseniosi,	gr. ij	
	Piperis nigri,		
	Pulveris glycyrrhizæ,	āā	gr. xxxij
	Mucilaginis,		q. s.
			M.

Make thirty-two pills. One to be taken three times a day directly after meals.

* *A Treatise on Diseases of the Skin.* 2d Ed. Philadelphia, 1881.

The liquor potassii arsenitis is best given combined with a bitter tincture, or with the wine of iron, as there is less likelihood of gastric or intestinal derangement.

Phosphorus has been used with success in psoriasis. It is best administered in the form of phosphorated oil, enclosed in capsules, the dose being about $\frac{1}{4}$ of a grain of the phosphorus. *Tar* and *carbolic acid* are at times employed internally in psoriasis with good results. The tar should always be ordered in capsules. The internal use of *mercurials* is invaluable in skin diseases of a syphilitic nature. *Iodide of potassium* finds its chief use in scrofuloderma, lupus and the late syphilodermata.

DR. TILBURY FOX, OF LONDON.

This writer, speaking of skin diseases of general character, remarks, as regards *local* remedies, there are three main rules to be observed, viz.:

1. Whenever active hyperæmia is present, be the disease what it may, applications of a stimulating nature should not be used, but the treatment should be essentially *soothing*, otherwise the inflammatory symptoms will be increased and the disease spread.

2. The action upon the skin of an external irritant—as scratching—should be prevented, and the air excluded from inflamed or excoriated surfaces, especially by oil-packing and otherwise.

3. Not until the stage of active hyperæmia has passed should astringents, stimulating applications or revulsives be employed. These, and absorbents, are to be reserved for the stages of vascular sluggishness and inflammatory induration and thickening.

As regards internal or general remedies, it is proposed to indicate below, in as practical and concise a form as possible, the conditions which should be taken into consideration in framing the treatment of such diseases as erythema, intertrigo, urticaria, eczema, lichen, prurigo, pemphigus, hydroa, ecthyma, furunculus, pityriasis rubra and psoriasis; and inflammatory conditions of the glands and hair follicles, as acne, dysidrosis and sycosis, which are analogous to, and only differ in regard to their anatomical seat from those preceding. This short sketch or chart, inasmuch as it applies to the bulk of skin diseases, should be used regularly in determining the treatment, which must necessarily vary with the different combinations of the influencing agencies referred to. These conditions are:

A syphilitic taint, which tends to induce induration, from the pres-

ence of syphilitic tissue; or ulceration, cachexia, and general debility in eczema, psoriasis, pemphigus, ecthyma, acne and intertrigo (infants).

Constipation, which causes dyspepsia, liver torpor and retention of excreta, and occurs in all forms of skin diseases.

Debility, including anæmia, which retards recovery from want of recuperative power in the system, all functions sharing in the debility. It is especially operative in furunculus, eczema, pityriasis rubra, pemphigus and ecthyma.

Diabetes, which increases any inflammatory condition, favors phlegmonous inflammation, and leads to freer development of disease and to chronicity. Its influence is often seen in eczema, psoriasis, intertrigo in adults, furunculus and anthrax.

Dyspepsi, which induces debility, leads to liver disturbance, renders the blood impure and increases hyperæmia by reflex action, as in acne, eczema, urticaria and sycosis.

Errors of Diet, which introduce special irritative substances into the blood, cause dyspepsia, lead to accumulation of nitrogenous matters in the system, to liver disorder, etc, and complicate all forms of inflammatory eruptions without exception.

Gouty and Rheumatic Diseases, which cause accumulation of uric and lactic acids and allied compounds in the blood, and give an inflammatory character to disease, as seen in eczema, psoriasis, lichen, ecthyma, sycosis and urticaria.

Lack of Hygiene, which disposes to torpor of the skin, and favors the occurrence of morbid action and disease, as seen in acne and sycosis, eczema, intertrigo, and erythema especially.

Repression of the special normal eliminary functions (skin and menstrual), which throws the necessity of compensatory elimination on the skin, which may fail to respond, and so become diseased. In dependent parts this leads to increase of fluid tissues. It occurs in furunculus, ecthyma and eczema.

Retention of Excreta, from kidney, liver and bowel inactivity, which gives the blood an irritative quality and aggravates hyperæmia in all inflammatory skin diseases. It also leads, in the case of kidney torpor, to increase of watery fluid in the tissues, as in eczema of the legs.

Strumous Diathesis, which imparts an unusual purulent character to eruptions, and favors the application of the connective tissues, as in eczema, psoriasis, acne and sycosis.

DIET IN SKIN DISEASES.

There are one or two observations to be made on this subject that may be of use in the management of these diseases :

First. A distinction must be made between the diet of the private and hospital patient. The latter often only requires to be well fed up, and his disease then speedily goes ; the former, on the other hand, often needs to have a check put on the quantity and quality of his food.

Second. In children, skin diseases may arise directly from defective alimentation, as in the case of eczema ; and it is frequently the case that the child, the subject of eczema, intertrigo or psoriasis, has not a sufficient supply of *milk*, either from excessive dilution or otherwise.

Third. The regulation of the diet, setting aside the question of quantity or quality, is, as a rule, needed not so much to directly influence the skin disease as certain states of the general health, which modify the particular disease present ; for instance, to meet especially dyspeptic, gouty and rheumatic conditions, but particularly the former.

In dyspepsia in connection with eczema, acne, psoriasis or congestion of the face, it is advisable, especially if the urine be very acid, to avoid sugar, tea, coffee, alcoholics, beer, raw vegetable matter, with unripe or uncooked fruit, veal, pork, seasoned dishes, pastry and the coarser kinds of vegetables, but especially all articles whose use is followed by heat or flushing of the face, and by flatulence and the like. Milk, the common meats, a light kind of bread and some very light wine should be the diet of dyspeptic patients whose skins are at all in a state of irritation. In very many cases the stomach is at fault at the outset, and a careful regulation of the diet is of the utmost importance as an aid to the other means adopted to correct faults in other parts of the system.

In gouty subjects much the same line is to be pursued. As regards stimulants, hock, a good light claret, or Moselle even (but not the sparkling), or whisky in Vals water, are the best beverages.

In strumous subjects, the diet should consist of as much fatty matter as possible.

Fourth. In children who suffer from ringworm, it is desirable to give as much fatty matter as possible, by means of milk, cream, eggs, and fat meat, if they can be got to eat it.

Fifth. In syphilis, the greatest care should be taken to avoid any-

thing beyond the most moderate use of stimulants; their abuse in this disease is a source of the greatest aggravation.

Sixth. In all cases in which the onset or early stage of a skin disease is accompanied by febrile disturbance, however slight, or in which the disease is very hyperæmic, stimulants should be avoided, and the plainest and simplest diet ordered. In marked cases of this kind, a milk diet for a while is often found to be very beneficial.

Seventh. In some cases in which the skin is hyperæmic, this condition is much increased by the indigestion of food, especially if dyspepsia exist, in consequence of the sympathy existing between the stomach and the skin of the part affected. This state of things is especially marked in such diseases as acne, congestion of the face and non-parasitic sycosis. Stimulants must be avoided, except they be diluted with some alkaline water; the use of a diet appropriate to the dyspepsia must be rigorously enforced.

Eighth. It is said that psoriasis requires an ample meat diet; but the patient must be dieted, and not his disease—*i. e.*, the diet should be plain and nutritious, and adapted to the constitutional peculiarities of the individual, according to circumstances.

Ninth. In all cases where a skin disease has become chronic, and wheret here is debility, the patient should be allowed a full, non-stimulating diet.

ANTISEPTICS IN SKIN DISEASES.

DR. PEREZ ORTIZ, OF SPAIN

Dr. ORTIZ (*Revista de Medicina, etc.*, 1890,) regards the principle of antiseptis as one of the most important in the therapeutics of dermatology at the present time. Many forms of skin affections are of parasitic, not to say bacteriological origin, and are decidedly affected by measures directed against the causative organisms. In *impetigo*, a disease which ORTIZ looks upon as parasitic in all its forms, he uses salicylated gauze or sublimated gauze, moistened before application in warm water. Whatever applications are made to the skin, whether in ointment or lotion, contain some such antiseptic as salicylic acid, boric acid or bichloride of mercury. In the various pustular affections, sublimate, salicylic or boric washes and ointments of a like character, ichthyol, alcoholic solutions of naphthol, and other antiseptic measures, are all of use. In parasitic affections, as they are now regarded, antiseptis is eminently the plan of treatment, as a salicylic acid solution (1:100). In herpes, pemphigus,

psoriasis, pityriasis, and many other disorders likewise, this mode of treatment is followed by remarkably beneficial results.

ARSENIC IN SKIN DISEASES.

DR. L. DUNCAN BULKLEY, OF NEW YORK.

According to this author, arsenic is valuable in chronic rheumatism; hence it is useful in arthritic eruptions. It is serviceable in certain neuroses, as chorea and neuralgia; therefore in skin diseases with neurotic elements; and it possesses anti-malarial properties, and is consequently serviceable in diseases of the skin showing periodic symptoms, as intermittent urticaria, etc.; likewise in patients with other skin diseases who have been exposed to miasmatic influence.

Arsenic is certainly also valuable in psoriasis, eczema, pemphigus, acne and lichen, in proper cases, when due regard is paid to the secretory organs, and to diet and other elements of general health; of less certain value in lupus, ichthyosis, sycosis, verruca, and epitheliomatous and cancerous diseases. It is absolutely useless or harmful in the syphilodermata, the animal and vegetable parasitic diseases (except in rare cases), in elephantiasis Græcorum and Arabum, in purpura, true prurigo, herpes zoster, scleroderma, molluscum contagiosum and fibrosum, keloid, vitiligo, nævus, etc.

In reference to its administration, it is quite sure that it is eliminated very rapidly, chiefly by the bowels and kidneys, so that the urine shows evidence of it in a few hours; no trace of it can be found on careful analysis of the body after death, two weeks after the last dose of arsenic. The drug, therefore, does not accumulate in the system, and no fear of this need be entertained; but when it is administered in increasing doses, absorption may be hindered, and when the dose becomes very large, active absorption of a large dose may give rise to a suspicion of cumulative action.

The first symptoms of a full dose of arsenic, in a very large share of cases, is a fullness about the face and eyes, and conjunctival irritation and tenderness. This need not be exceeded, but may often be kept up with advantage to a slight degree till the disease yields. Before any harm is done by the arsenic, either this or a slight nausea or diarrhœa manifests itself. It should always be given with or just after meals. It is often best to give it alone, or with a small amount of bitter infusion. The bowels should be first well purged, and an

occasional laxative will both assist the action of the drug and prevent or modify some of its unpleasant effects. If the urine becomes loaded and the tongue coated, it is best to stop the medicine for a short time and give diuretics; some of these disturbances can be prevented by combining an alkali, as acetate of potassium, carbonate of sodium, or aromatic spirits of ammonia, with the arsenic.

In regard to the most serviceable forms in which to use arsenic, they are named in the order of their value: Solution of the chloride of arsenic, solution of the arseniate of potassium, that of the arseniate of soda, and the arseniates of ammonium, arsenious acid, iodide of arsenic, and the arseniates of iron and quinine; of as yet untried efficacy, solution of the chloro-phosphide of arsenic and arseniate of antimony.

The dose of arsenic, small at first, is to be increased slowly until some of its physiological effects are manifested or the disease yields; it may then be somewhat diminished.

It is very important that arsenic be taken very regularly and persistently, and always under the supervision and frequent inspection of the physician.

Frequently, arsenious acid is better tolerated when combined with opium, as:

293. R.	Acidi arseniosi,	gr. j	
	Pulveris opii,	gr. iv.	M.
Make sixteen pills.			

NELIGAN recommends highly what he calls the *iodurated solution of the iodide of potassium and arsenic*, after the following formula:

294. R.	Liquoris potassii arsenitis,	℥lxxx	
	Potassii iodidi,	gr. xvj	
	Iodinii puri,	gr. iv	
	Syrupi florum aurantium,	f. ℥ ij.	M.
Each f. ℥ of this contains ℥v of Fowler's solution.			

In skin diseases of a nervous type the following formula, after ROUTH, promises well;

295. R.	Acidi arseniosi,	gr. j	
	Phosphori,	gr. ʒ	
	Acidi hydrochlorici diluti,	f. ℥ j.	M.
For an adult, ℥xv-xx thrice daily.			

The only local application of arsenic which is justifiable is either one where the strength is so weak, and the extent of its use so small, that there is no danger from absorption, which may occur when not

expected, or one of such a strength as to kill the adjoining tissue at once, and so prevent absorption, as is the case with Marsden's mucilage. (Index.)

MR. THOMAS HUNT, F. R. C. S., LONDON.

Mr. HUNT has urged the claims of arsenic in skin diseases more strongly than any other writer; and as he claims that everything depends upon the particular mode of administering it, his directions should be closely scanned. He remarks that there are few medicines less likely to do harm than arsenic when administered in the manner about to be described. *Its curative powers seem to reside alone in doses too small to be mischievous.* It is impossible to push it. But a patient administration of small doses under favorable circumstances, for weeks, months or years together, will be found to exercise an almost omnipotent influence over the cutaneous diseases to which it is adapted.

The numerous failures of arsenic may be traced to one or more of the following sources: 1. The syphilitic character of the cutaneous disease; mercury is then wanted—arsenic has no influence whatever. 2. The administration of arsenic during the inflammatory or febrile stage of cutaneous disease, under which circumstances it rarely fails to increase the inflammation, and never does any good. 3. Its administration on an empty stomach, thus exciting gastric irritation. 4. Too large doses and too long intervals between the doses. 5. The serious error of directing *gradually increasing doses*. The proper method is to increase the dose one-fifth, once or twice a month, if after a fortnight it produces no sensible effect whatever. So soon as it begins to assert itself, the full dose is arrived at, and it should be continued without further increase. Five minims of Fowler's solution thrice daily is sufficient to begin with, and this may be reduced as occasion may require. It should be mixed with a little water, or with the beverage drunk with or after meals. Children above five years old will bear nearly as large a dose as adults.

A full dose being first administered at regular intervals, in a few days (or possibly weeks) a pricking sensation is felt in the tarsi, and the conjunctiva becomes slightly inflamed. *At this crisis the disease is brought under arrest, and generally from this period appears to be shorn of its strength.* The dose may now be reduced, and in some cases a very small dose, taken with exact regularity, will suffice to keep the eyelids slightly tender and the skin healing, until at length

even the disposition to disease appears to die away under the influence of the medicine. The patient should be examined at first once a week. The medicine must not be entirely abandoned *until weeks or months after all disposition to morbid action appears to have subsided*. The arsenical course should be protracted, in reduced doses, for about as many *months* after the final disappearance of the disease as it had existed *years* before. This will prove the best security against a relapse. In plethoric and inflammatory subjects the disease will be liable to relapse, unless the diet be so regulated as to keep the system always free from increased vascular action. In some cases stimulants must be entirely abandoned; in others, a sparing allowance of animal food appears to be essential to the preservation of health, and in a few, vegetable diet for life. Cutaneous diseases are sometimes complicated with diarrhœa, dyspepsia or general irritability of the stomach. Arsenic, in small doses will be found to soothe the bowels (*the pulse being quiet*) in proportion as it allays the irritability of the skin. This assertion of our author, when first made, was treated with ridicule; but after twenty years' further observation, he repeats it.

Arsenic, if rightly used, is adapted to the treatment of six out of every seven cases of chronic skin disease the physician is called upon to relieve. More than this, the diseases which are curable by arsenic are also absolutely incurable without it, try what you will.

Our author gives the following specific directions for the use of Fowler's solution:

First. It should be given in divided doses, three doses in twenty-four hours, simply to avoid an unnecessarily large dose.

Second. It should be diluted with pure water, or if the case require the influence of antimony, the following should be ordered:

296. R.	Liquoris potassii arsenitis, Vini antimonii, Aquæ,	m̄xl m̄xl f. ʒj.	M,
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A teaspoonful, diluted, three times a day.

Third. This dose should be taken with or immediately after a meal, in order that, being mixed with a patient's food, it may find a ready entrance to the blood, and that the bare possibility of its irritating the mucous membrane of the stomach or bowels may be avoided. Not that there is any danger of mischief, but the patient, aware that he is taking arsenic, may thus be disabused of all fanciful or imaginary sufferings of this kind.

Fourth. It should be clearly understood that arsenic acts very slowly, and therefore it is best to begin with an average dose, say five minims of Fowler's solution, and this should be increased, not day by day, but after two, three or four weeks. It should always be freshly prepared.

MERCURY IN SKIN DISEASES.

DR. R. LIVEING, LONDON.

This writer attaches much importance to mercurial plaster in many skin diseases :

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|---------|--|-----------------------------|----|
| 297. R. | Hydrargyri,
Olei terebinthinæ,
Emplastri plumbi, | ℥ iij
f. ℥ iss
℥ xij. | M. |
|---------|--|-----------------------------|----|

Of this he says it is most commonly used in the treatment of syphilides. In hard chancre it is the best local application, and can be conveniently used when spread on linen and wound round the penis. It is very useful in enlargement of the inguinal glands previous to the formation of an abscess. It is indicated in squamous and ulcerated forms of cutaneous syphilides, when its value may be shown by covering one portion of the affected skin with the plaster, and leaving the other exposed, when it will be found that the former soonest recovers. It is very advantageously applied to the condylomata of children, and in psoriasis. It is also useful in chronic, non-syphilitic skin affections, especially sycosis, acne indurata and lichen. Of other mercurial preparations, he especially commends the following :

UNGUENTI HYDRARGYRI AMMONIATI COMPOSITUM.

- | | | | |
|---------|---|-------------------------------|----|
| 298. R. | Hydrargyri ammoniati,
Zinci oxidi,
Hydrargyri oxidi rubri,
Unguenti simplicis, | āā gr. xl
gr. v
℥ j. | M. |
|---------|---|-------------------------------|----|
- Used in chronic skin diseases.

UNGUENTUM HYDRARGYRI CINEREI.

- | | | | |
|---------|--|-----------------|----|
| 299. R. | Hydrargyri oxidi cinerei,
Unguenti cetacei, | gr. xx
℥ ss. | M. |
|---------|--|-----------------|----|

Used in syphilitic and other ulcerations of the Schneiderian membrane; applied to the nose, night and morning, with a pencil.

UNGUENTUM HYDRARGYRI CUM PLUMBO.

300. R.	Plumbi acetatis,	gr. x	
	Zinci oxidi,		
	Hydrargyri subchloridi,		
	Unguenti hydrargyri nitratis,	āā	gr. xx
	Adipis recentis,		ss
	Olei palmæ purificati,	f. 3	ss. M.

An ointment largely used at the Skin Hospital, Blackfriars road, in the treatment of eczema capitis, etc.

DR. L. CANE, OF LONDON.

In some obstinate cases of ringworm of the scalp, this writer (*Lancet*, August, 1873,) commends as the best of the mercurials the *oleate of mercury*. Other writers also emphasize its value in various skin affections. Dr. CANE states that the advantages which oleate of mercury seems to possess over other remedies are:

1. It is a *certain remedy*, if carefully applied.
2. It *produces no staining* or injury of the skin. In cases where the disease appears on the face, it is of great importance to avoid any disfigurement or staining.
3. It is *painless* in its application. This is not the case with the ordinary strong parasiticides, most of which produce vesication, etc.
4. It *readily penetrates* into the sebaceous glands, hair follicles, and even into the hairs themselves, the mercury being in a state of solution in an oily medium, and it is therefore much more likely to destroy the fungus than the spirituous or aqueous solution of mercury, etc. This penetrating power of the oleate may be increased by adding a small quantity of ether (one part to eight) to it.

In very sensitive skins the irritation sometimes produced by it may be avoided by using a weaker solution (five per cent.), and by applying it with a camel's-hair brush.

As the oleate of mercury is not officinal, the following formula—that used at the University College Hospital, London—is added:

301. R.	Hydrargyri peroxidi præcipitati,	3j	
	Acidi oleici,	f. 3	x. M.

Agitate the acid in a mortar, add the peroxide gradually, triturating frequently during twenty-four hours, until it is dissolved, and a viscid solution is formed.

ON PARASITICIDES.

DR. H. S. PURDON, LONDON.

Parasiticides may be divided into those derived from the vegetable, animal and mineral kingdoms; but without going deeply into

the subject, it may be briefly stated that the most valuable obtained from the first are *creosote*, *carbolic acid* and *acetic acid*. These three check the development of spores; creosote, according to Mr. BEAUCHAMP, although it allows the mycelium to form, prevents the spores from germinating. From the second, the only remedy in use is *cantharides*, which, when used in the form of the liniment of the *British Pharmacopœia* (about the strength of the cantharidal collodion, U. S. P.), quickly cuts short the disease, especially *tinea tonsurans*, *circinata* and *alopecia acuta*; it likewise stimulates the affected skin to take on a more healthy action. From the mineral kingdom we have *iodine* and *mercury*, especially the bichloride, chromate, nitrate and white precipitate; *sulphur*, *borax*, etc. The first has a well-earned reputation, and the *chromate of mercury* our author has carefully tried in *tinea versicolor* and some other forms of vegetable parasitic diseases. An objection to its use is that it does not mix with water; indeed, it is insoluble in any fluid, but may be used as an ointment. He has added glycerine and rectified spirits, so as to endeavor to suspend it in solution, but without success. The only way to manage is to shake the bottle before applying it. A useful auxiliary to the above remedies is epilation, which should be performed in inveterate cases. Of course, constitutional treatment is of the utmost importance, *quinine* being our chief remedy, which substance, it is asserted, has the property of destroying vegetable growth. The tincture is the best preparation for children.

No doubt the growth and development of a fungus is favored by some peculiar condition of the system; for example, *tinea versicolor* flourishes and is common on the bodies of consumptive patients.

In all cases of vegetable parasitic diseases, our author prescribes constitutional as well as local treatment. *Cod-liver oil*, *pancreatine*, the *syrup of the iodide of iron*, *quinine*, and in hospital practice *salicine*, are the remedies relied on. The therapeutical fact should be remembered that parasitical affections are rarely, if ever, "cured" by destroying the parasite; but they can be eradicated by administering appropriate tonics and alteratives, which are capable of correcting the blood dyscrasia, which tends to keep up the disease.

The following formulæ for parasiticides are recommended:

DR. MALASSEZ.

302. R. Hydrargyri sulphatis flavæ, gr. xv
 Butyri cocoæ, 3^v
 Olei ricini,
 Olei amygdalæ dulcis, āā f. 3^v. M.
- A mild parasitic ointment. Apply twice daily in pityriasis, tinea, sycosis, etc.

DR. R. LIVEING.

LOTIO ACIDI SULPHUROSII.

303. R. Acidi sulphurosi,
 Aquæ destillatæ, āā f. 3^{iv}. M.
- Used in all parasitic skin diseases.

LOTIO CALCII SULPHURETI.

304. R. Calcis vivæ, ℥b ½
 Sulphuris, ℥b ss
 Coque cum aquæ, Ov.
 Evaporetur, ad Oij. M.
- Used in scabies and other parasitic diseases.

LOTIO HYDRARGYRI PERCHLORIDI.

305. R. Hydrargyri bichloridi, gr. x
 Bismuthi subnitratis, gr. cxx
 Spiritus camphoræ, f. 3^{ss}
 Aquæ, Oj. M.
- Used in parasitic diseases and acne.

UNGUENTUM CREOSOTI.

306. R. Creosoti, ℥vj
 Unguen. hydrargyri, gr. xxx
 Hydrargyri oxidi rubri levigati, gr. xx
 Adipis recentis, 3^j. M.
- Used in parasitic and other skin diseases.

J. M. DA COSTA, M. D., PHILADELPHIA.

307. R. Calcis hyposulphitis,
 Sodii hyposulphitis, āā 3^{ss}
 Aquæ, f. 3^{iv}. M.
- A useful lotion for *sycosis menti*.

The following is useful :

VESICATING, PARASITICIDE.

308. R. Tincturæ iodinii compositæ, f. 3^j
 Iodinii, gr. x
 Potassii iodidi, gr. xv. M.
- Used in chronic stages of vegetable parasitic diseases.

LOCAL APPLICATIONS IN SKIN DISEASES.

It has been asserted that under the influence of galvanism local applications, as those of mercury in parasitic skin affections, are more readily absorbed than when employed alone. This has been well studied by Dr. M. B. HARTZELL, of the skin clinic of the University of Pennsylvania, and proved to be without foundation.

In prescribing ointments or pastes for ladies, it is to be kept in mind that often it is unpleasant to the patient to use such applications constantly because of unsightliness. It is possible to in a measure obviate this by making up the preparation of a color that harmonizes as nearly as possible with the skin. Oxide of zinc ointment makes an excellent basis for a white ointment, and may be brought to a yellowish, pink, or brownish hue by various medicaments or inert pigments.

There have been suggested within the past few years various new substances for bases of local applications which are worthy of notice. Among these is *lanolin*, a fatty substance made from wool, which possesses the great advantage of miscibility with water and watery solutions. Another is a substance known as *bassorin*, obtained from tragacanth, and used for a base for dermatological preparations. The formula given by PICK, of Prague (*Amer. Jour. Med. Sci.*, 1891) is

309. R.	Tragacanth,	5	
	Glycerine,	2	
	Water,	100.	M.

It may be prepared hot or cold. When applied in the latter way it is cooling and grateful to an inflamed skin, and when it dries, contracts, and forms a fine, smooth, dry covering with a feeling of tension, which is not unpleasant to the inflamed surface. A variety of medicaments, soluble or insoluble, may be mixed in with the paste, just as they would be used in gelatin preparations and pastes.

HEBRA (*Zeitsch f. Therap.*, 1890,) suggests that a saponated glycerine be used in making up local applications, forming an ointment body which melts on application to the skin from the body heat, and which is easily soluble in water, and can therefore be easily removed by washing. He states that 95 per cent. of castile soap or cocoa-nut oil soap mixed with glycerine gives such a mass. As illustrations of its use HEBRA suggests these formulæ:

310. R.	Glycerini saponati,	95	
	Acidi salicylici,	5.	M.

Useful in removal of epidermis, to complete desquamation, and as an antiseptic in parasitic skin diseases.

- | | | | |
|---------|---------------------|----|----|
| 311. R. | Glycerini saponati, | 90 | |
| | Acidi salicylici, | 5 | |
| | Resorcinae albiss., | 5. | M. |
- For use in parasitic skin affections, as sycosis, etc.

It is invaluable for combination with iodoform, much of the odor of the latter being overcome.

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|---------|------------------------------|-----|----|
| 312. R. | Glycerini saponati, | 80 | |
| | Ammonii sulpho-ichthyolatis, | 10 | |
| | Zinci oxidi, | 10. | M. |
- Used in dry, scaly eczema, lichen ruber and planus, all forms of pruritus, etc.

So *mollin*, a soap made of pure mutton-fat, cocoa-nut oil and potash, is used as a basis for medicaments, admitting of incorporation of a variety of substances.

SULPHUR IN SKIN DISEASES.

This remedy is almost as old and as much of a standard in the treatment of dermatoses as is arsenic or mercury—not only externally, but internally as well. Where constipation exists, especially combined with full habit, as is often the case in some of the most rebellious examples of eczema, no laxative is better than

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|---------|-----------------------|----|--------|
| 313. R. | Sulphur. loti, | | |
| | Potassii bitartratis, | āā | 3j. M. |
- Sig.—A heaping teaspoonful every morning in water.

Or as a very worthy substitute, although scarcely an improvement in the matter of taste, is the old sulphur and molasses mixture, given every spring by our anxious grandmothers, as a “blood-purifier.” It is invaluable in many forms of skin eruption as a local application, preferably worked up into an ointment with vaseline or some other base. Thus it is used in seborrhœa, in chronic eczema, in ichthyosis, acne rosacea, and in various parasitic affections. Sulphur fumigations have been used with the best results in cases of scabies. The patient being seated naked upon a cane-seat chair, with a blanket tucked about him like a tent and enveloping him to the neck, a tin plate containing an ounce of sulphur is placed upon a tripod beneath the chair and over a lighted alcohol flame.

DR. J. F. PAYNE, ENGLAND.

In a recent lecture on acne (*Lancet*, 1890; *Med. News*, 1891), Dr. PAYNE advises that patients should be instructed to wash the parts at night with hot water and strong soap—soft soap in small quantities, if the skin is thickened. Following the bathing, the parts should be briskly rubbed with the towel, and any comedones present and not removed by the washing and friction may be taken out with a proper instrument. Following this, an alkaline lotion such as this should be applied:

- | | | | |
|---------|-----------------------|--------|----|
| 319. R. | Precipitated sulphur, | gr. xv | |
| | Glycerine, | f. 3ss | |
| | Spirits of camphor, | ℥v | |
| | Lime water, | f. 3j. | M. |

For some skins the lime-water is too strong, and should be diluted with rose water. This lotion should be applied at night with a soft sponge or pledget of cotton, allowed to dry, and washed off the next morning. The usual sulphur ointments are too strong. The proper strength is represented by

- | | | | |
|---------|-----------------------|--------|----|
| 320. R. | Precipitated sulphur, | gr. xv | |
| | Carbolic acid, | ℥x | |
| | Benzoated lard, | 3j. | M. |

To make this last application alkaline, 15 grains of carbonate of potassium may be added.

The above treatment, though it may not entirely remove the disease in the young, will cure the attacks as they occur. Another excellent application is:

- | | | | |
|---------|-------------------------|--------|----|
| 321. R. | Corrosive sublimate, | gr. ss | |
| | Emulsion of almond oil, | f. 3j. | M. |

Lead or zinc mixtures may be used if there is much inflammation, but it should not be forgotten that lead salts turn black in the presence of gases containing sulphur. Bismuth subnitrate may be used according to this formula:

- | | | | |
|---------|-----------------------|--------|----|
| 322. R. | Bismuthi subnitratis, | gr. xx | |
| | Glycerini, | f. 3j | |
| | Aquæ rosæ, | f. 3j. | M. |

Or the bismuth may be replaced by the same amount of oxide of zinc.

In the internal treatment the condition of the patient must be the guide. Beer and alcoholic drinks should be avoided, and the patient kept on a laxative regimen. Magnesia in the form of the purgative waters, and sulphur, have excellent effects. In some a change of diet alone is sufficient to cure the acne. If anæmia or other diseased conditions exist, they must be treated on general principles.

Dr. SARAH E. POST, of New York (*Med. News*, 1891) recommends as a local application a solution of boric acid, half an ounce, in eight ounces of alcohol, to which if desired a little perfume may be added.

In the same journal the following is quoted :

- | | | | |
|---------|------------------|----|----------|
| 323. R. | Salicylic acid, | | |
| | Sodium borate, | āā | gr. lij |
| | Boric acid, | | gr. xl |
| | Alcohol, | | |
| | Glycerine, | āā | f. ʒ iss |
| | Oil of bergamot, | | gtt.v. |
| | | | M. |
- To be used as a wash three times daily.

DR. TILBURY FOX, OF LONDON.

In the treatment of acne it is necessary, first of all, to insure cleanliness; secondly, to remove any cause of debility present, correct menstrual deviations, cure dyspepsia, etc., and especially to prevent constipation. These preliminary cares are *sine qua non* to success. Then, in the simpler cases, which exhibit little inflammatory action, recourse may be had to friction and gentle stimulation; borax, soda and calamine lotions, or the following, will suffice :

- | | | | |
|---------|--------------------------------|------------|----|
| 324. R. | Hydrargyri chloridi corrosivi, | gr. ij | |
| | Emulsionis amygdalæ amaræ, | f. ʒ viij. | M. |

In the severer forms much more remains to be done. The general condition of the health must be improved, and whatever special indications are present be fulfilled. Locally, if there be much inflammation, warm poultices, hot vapor douches and warm lead lotions are called for. When these have allayed the irritation, absorbents may be used—oxide of zinc lotion or the oxide of zinc and glycerine. Our author generally prescribes :

- | | | | |
|---------|--------------------------------|------------|----|
| 325. R. | Hydrargyri chloridi corrosivi, | gr. ij | |
| | Sodii biboratis, | ʒ ss | |
| | Glycerini, | f. ʒ j | |
| | Aquæ, | f. ʒ viij. | M. |
- To be frequently used.

PROF. HEBRA, OF VIENNA.

This author treats acne as follows: He gives vapor douches to the face, applies soft soap, or

- | | | | |
|---------|-------------------|-----|----|
| 326. R. | Potassæ causticæ, | ʒj | |
| | Aquæ, | Oj. | M. |

In other cases he washes the face with soft soap, and at night applies a paste made as follows :

327. R. Sulphuris, 3j
Alcoholis, f. 3j. M.

To be painted on by means of a camel's-hair pencil. This is removed in the morning by means of soap. Cocoa butter is kept on all day.

He sometimes uses :

328. R. Hydrargyri chloridi corrosivi, gr. v
Alcoholis, f. 3j. M.

To be applied with a compress for two hours.

At other times he applies, two or three times a day :

329. R. Hydrargyri chloridi corrosivi, gr. j
Tincturæ benzoini, f. 3j
Aquæ, f. 3vj. M.

LASSAR recommends the following paste in the treatment of acne :

330. R. Beta-naphthol, i
Lanolin, 25
Green soap, 25. M.

The paste is to be spread over the affected part in a thick layer, left on for half an hour, then rubbed off and powdered talc dusted over.

GAILLETON (*Le Bulletin Med.*, 1889,) recommends the following for its energetic local action.

331. R. Hydrargyri iodochloridi, gr xxiv
Axungiae, 3 ss. M.
Rub in vigorously.

DR. L. DUNCAN BULKLEY, OF NEW YORK.

In cases of the simple and punctate forms of acne, this practitioner frequently commences the treatment with *acetate of potassium* internally, gr. xv thrice daily, well diluted, followed by tincture of the muriate of iron as soon as the new elements of disease cease to form. Where the skin is thick and doughy, he has had good results from administering *glycerine*, with citrate of iron and quinine dissolved in it. He has found some cases do well under citrine ointment, diluted three times, and well rubbed in at night. The first effect is stimulating, and the patient appears worse, when the treatment is to be suspended and returned to in a few days. He has also prescribed very largely the following lotion :

332. R. Sulphuris loti, 3j
Etheris sulphurici, f. 3j iv
Alcoholis, f. 3 ijss. M.
For a lotion.

Dr. SYDNEY RINGER and others have used with success the *sulphide of calcium*, gr. $\frac{1}{10}$ to $\frac{1}{2}$, four times daily.

DR. LOUIS A. DUHRING, OF PHILADELPHIA.*

Acne is a functional affection, and treatment must be adapted to correct the general disorder. Derangement of the stomach and bowels will be found at the bottom of a vast number of cases. When the tongue is furrowed and the alimentary canal irregular in action, the following acid aperient mixture will frequently give excellent results:

333. R.	Magnesii sulphatis,	℥ iss	
	Ferri sulphatis,	gr. xvj	
	Acidi sulphurici,	f. ℥ ij	
	Aquæ,	q. s. ad ℥ viij.	M.

A tablespoonful in a goblet of water, half an hour before breakfast.

The natural laxative mineral waters are also useful. If vegetable cathartics are preferred, pills of aloes and rhubarb are the most useful.

Iron and cod-liver oil are frequently called for in the acne of anæmic young persons. The mineral acids are of value in bringing up the general health. In the papular variety and where the lesions are imperfectly developed, *arsenic* is of decided service in tonic doses, *liquoris potassii arsenitis*, gtt. j–ijj. *Glycerine*, in tablespoonful doses, two or three times a day, has been extolled in the punctate variety. Stimulating drinks and all indigestible food should be prohibited.

Locally, in the vast majority of cases, stimulating applications are demanded. *Sulphur* may be ordered as follows, with good results in many cases:

334. R.	Sulphuris sublimati,	℥ j	
	Glycerini	f. ℥ j	
	Cerati simplicis,	℥ i	
	Olei rosæ,	gtt. iij.	M.

For an ointment. To be thoroughly rubbed into the skin at night.

Several mercurial preparations, the biniodide, (gr. v–x to ℥ j,) the corrosive chloride, (gr. $\frac{1}{4}$ –ij to ℥ j,) the protiodide, (gr. v–xv to ℥ j,) and in severe cases of indurated acne, the emplastrum hydrargyri, are valuable applications.

ACNE ROSACEA.

This writer observes that *rosacea* is a disease of the blood-vessels,

**A Treatise on Diseases of the Skin.* Phila., 1881.

especially of the nose, and is not a species of acne, though they often occur together. Cases with this disfiguring malady go about not cured, because physicians tell them nothing can be done for them. Dr. DUHRING has had excellent results from stimulating washes and ointments, especially from:

335. R. Sulphuris loti, 3j
 Adipis, 3j. M.
 Rub on the parts daily.

Tonics, aperients, a carefully regulated diet, etc., should be remembered, if necessary. Three months should effect a cure.

DR. TILBURY FOX, LONDON.

In *acne rosacea*, diet and good hygiene are of vast importance. If there be many varicose vessels, they may be cut across, the incisions never being deeper than two lines. Cold water will stay the bleeding, and collodion may be subsequently used to contract and heal the incisions. Acids and pepsin, given internally, do much good. Much has been said of the efficacy of the iodo-chloride of mercury in *acne rosacea* and *indurata*. The following formula is used.

336. R. Hydrargyri iodo-chloridi, gr. v-xv
 Adipis, 3j. M.

The ointment requires care, as it produces a good deal of irritation.

UNNA seeks to destroy the minute but enlarged vessels by the actual cautery, and there is sold in the shops a modification of the ordinary Paquelin cautery, having a hair-sized cautery point. This, when heated to white heat, is delicately penciled along the course of these vessels. In the healing of these cauterizations the vessels are destroyed, and thus the redness of the part diminished somewhat.

ALOPECIA.

DR. L. DUNCAN BULKLEY, NEW YORK.

337. R. Tincturæ capsici, āā
 Tincturæ cantharidis, f. 3 ss
 Tincturæ nucis vomicæ, f. 3 ij
 Glycerini, f. 3 ss
 Aquam, ad f. 3 iv. M.

Use as a lotion, to be well rubbed in, night and morning, in *alopecia areata*.

Dr. BULKLEY does not believe this is a parasitic disease. The prognosis is fair, but there is a tendency to relapse.

When the baldness is the result of *seborrhæa*, as shown by the abundant dandruff, use :

338. R. Tincturæ cantharidis, f. ʒj
 Unguenti hydrargyri nitratis, ʒij
 Unguenti aquæ rosarum, ʒvj
 Olei amygdalæ amaræ, gtt. ij. M.

As a stimulant in the loss of hair after febrile disease, simple debility or syphilis, the following is serviceable :

339. R. Tincturæ cantharidis, f. ʒij
 Tincturæ capsici, āā f. ʒss
 Olei ricini, ad f. ʒiv. M.
 Aquæ coloniensis,

Rub on the scalp with a bit of flannel, night and morning. The cantharides should be increased till a slight tingling follows the application.

DR. BOUCHUT, PARIS.

340. R. Zinci chloridi, ʒijss
 Beef marrow, ʒj. M.

The head is shaved, and frictions made morning and evening with this pomade until a minute purulent eruption is produced. The frictions are then stopped, to be recommenced when the eruption has disappeared.

341. R. Tincturæ cantharidis, f. ʒj
 Olei ricini, f. ʒss.
 Purified beef marrow, ʒj.
 Spiritûs amygdalæ amaræ, āā gtt. xij. M.
 Spiritûs limonis,

To be rubbed, morning and evening, on the scalp.

342. R. Olei tiglii, ℥xv-xxx
 Olei amygdalæ dulcis, q. s. ad f. ʒss. M.

Shave the head and rub this pomade on the scalp twice a day, until an eruption is produced.

343. R. Tincturæ iodinii, f. ʒiss
 Extracti hyoscyami, ʒiv
 Beef marrow, ʒj
 Spiritûs bergamii, q. s. M.

To be rubbed on the scalp, morning and evening, when falling of the hair takes place after a confinement or a serious illness. In addition, preparations of iron, bark, and, in some cases, of arsenic, are to be given internally.

MR. ERASMUS WILSON, LONDON.

344. R. Tincturæ cantharidis, f. ʒiss
 Spiritûs rosmarini, āā gtt. x
 Spiritûs lavendulæ, f. ʒiss. M.
 Eau de cologne,

Rub the scalp gently with a piece of flannel dipped in this mixture, in order to stimulate the growth of the hair.

345. R. Tincturæ cantharidis, f. 3j-ij
 Cupri acetatis, gr. ij
 Olei amygdylæ dulcis,
 Olei ricini, āā f. 3vj
 Spiritus lavendulæ, to perfume, q. s. M.
- Apply, every evening, a small quantity of this liniment to the roots of the hair, in order to prevent it from falling, and to stimulate its growth.

For ordinary falling or thinning of the hair, of the various stimulants, Mr. WILSON prefers *ammonia* :

346. R. Aquæ ammoniæ fortis,
 Olei amygdalarum,
 Chloroformi, āā f. 3ss
 Alcoholis, f. 3ijss
 Olei limonis, f. 3ss. M.

The instructions for the use of this lotion are that it should be dabbed upon the skin of the head after thorough friction with the hair-brush. No doubt there are cases in which this lotion must be used with caution. It may be diluted, if necessary; it may be applied sparingly or abundantly; and it may be used daily or otherwise.

There are cases in which a less stimulating and even a refrigerating lotion may be required, and where an objection may be raised to the quantity of oil contained in the former lotion; in which cases a lotion of borax and glycerine, two drachms of each to eight ounces of distilled water, is cooling and refreshing. This lotion allays dryness of the skin, removes scruff and subdues irritability.

In cases of complete baldness, and in *aloppecia arcata*, he prescribes :

347. R. Linimenti camphoræ,
 Linimenti ammoniæ,
 Linimenti chloroformi,
 Linimenti aconiti, āā partes equales. M.

This is to be well rubbed into the bare places daily, or even twice a day, so as to produce a moderate amount of stimulation. In cases of ophiasis, due to neuralgia of the cutaneous nerves of the scalp, this liniment is very valuable. In other cases the liniment of iodine may be painted on the bare patches daily, or they may be stimulated by friction with the ointment of cantharides or any other powerful stimulant. Painting the discs of area with the epispastic fluid of the Pharmacopœia may also occasionally be resorted to, or the epispastic fluid may be diluted with spirits of camphor. The intention of all these local remedies is to stimulate without setting up irritation, to increase the energy of circulation and innervation of the

part, and in some instances, to abstract the excess of fluids from the tissues of the skin, by inducing exudation; but these results must be accomplished, as far as possible, without pain and without severity.

The constitutional treatment of alopecia should consist in the adjustment and regulation of the functions of digestion and assimilation, and where no other special conditions are to be fulfilled, the adoption of a tonic regimen and the administration of tonic remedies. Of these last, arsenic bears the palm, and may be advantageously prescribed in doses of two to four minims three times a day, directly after food, and in any convenient vehicle.

Alopecia Syphilitica will yield very readily to the treatment applicable to the parent disease—namely, iodide of potassium, with the local inunction of the nitrate of mercury ointment, diluted in the proportion of one part to three or four of benzoated lard or vaseline, or the use of a lotion of the perchloride of mercury.

ECZEMA.

DR. L. DUNCAN BULKLEY, NEW YORK.

This author states (*Transactions American Medical Association*, 1875,) that acute eczema can seldom be abated, and we must aim at a soothing treatment only. For this purpose he recommends lotions which on evaporating leave a finely-divided powder on the surface, *e. g.*:

348. R.	Zinci carbonatis,	℥ ij-iv	
	Zinci oxidi,	℥ j-ij	
	Glycerini,	f. ℥ ij	
	Liquoris picis alkalini,	f. ℥ j	
	Aquæ rosæ,	f. ℥ iv.	M.

When exudation has ceased, ointments are useful, of which simple mutton suet is as good as any.

The *liquor picis alkalinus* mentioned above is praised by Dr. BULKLEY as a very valuable preparation in chronic eczema. The formula is:

349. R.	Picis liquidæ,	℥ ij	
	Potassæ causticæ,	℥ j	
	Aquæ destillatæ.	f. ℥ v.	M.

Dissolve the stick potassa in the water, and then gradually add the solution to the tar, with rubbing in a mortar.

It may be applied diluted, undiluted, or in an ointment. For constitutional treatment, alkalis and cod-liver oil are needed, but arsenic has been greatly overrated.

Dr. BULKLEY praises the use of *tannin* in ointment, $\mathfrak{z}\text{j}$ to $\mathfrak{z}\text{j}$. He has also employed bismuth subnitrate in ointment, half a drachm or one drachm to an ounce; and with many skins it acts very much better than the zinc ointment. He has also returned, in a measure, to the employment of the old *unguentum picis*, or tar ointment, of the Pharmacopœia, diluted two, three or even more times, either with simple or rose ointment, or in combination with oxide of zinc ointment, and finds that it does not merit the neglect into which it appears to have fallen.

Baths at times render great service. As is well known, the application of simple water to eczematous skin does harm, and is to be avoided as far as possible; but the same does not hold true in regard to water medicated so as to offer a soothing element, by means of the carbonate of potash and soda, borax, acetate of potash, etc., combined with starch.

BULKLEY (*Trans. New York Med. Assoc.*, 1890), quoted in the *Annual of Univ. Med. Sciences*, 1891, states that the chief elements of causation of eczema in old people are a debility of tissue and a faulty renal activity. So, too, deficient intestinal activity probably has some effect, and a moderate glycosuria found not infrequently among the elderly may often be the origin of the affection.

At the beginning of treatment a pill of *blue mass*, *colocynth* and *ipœcac* gives relief to the system, and is to be repeated if necessary. Later a pill of *aloes and iron* before meals or small doses of *calomel* (gr. ss) before meals will serve to keep up the action of the bowels. *Acetate of potassium* is to be used as a diuretic (gr. x-xv, three times daily, after meals) with *nux vomica*, in a bitter infusion, as quassia.

Arsenic is rarely useful, but when there is a tendency to the formation of bullæ it may be employed best in form of Fowler's solution diluted with water or Vichy. As sedatives *phenacetin* in 5 grain doses, taken in hot water on retiring, or *antifebrin* in 6 grain doses, taken similarly, often allay the intolerable itching. Tincture of *gelsemium* (gtt. x-xx) with a drop of tincture of *aconite* will serve the same purpose. Opium is to be avoided, so too all alcoholics. Care should be taken that the patient is not over-nourished.

As local treatment he prefers for extensive eczema the following :

350.	R.	Pulv. calamin. prep.,	℥ij	
		Pulv. zinci oxidi,	℥iv	
		Acidi carbolicī,	℥j-ij	
		Glycerini,	℥vj-℥j	
		Aquæ calcis,	f. ℥j	
		Aquæ rosæ,	ad f. ℥ viij.	M.

On localized patches, especially if the skin be thickened, the following may be used :

351.	R.	Pulveris zinci oxidi,	℥j	
		Unguenti picis,	℥iv	
		Unguenti aquæ rosæ,	℥iss.	M.

Sig.—To be spread on lint and bound on the patches of eczema.

DR. LOUIS A. DUHRING, OF PHILADELPHIA.

This writer, in some remarks on *eczema rubrum*, says that in many cases local treatment alone is all-sufficient. In the earlier stages of the disease, when there is considerable watery exudation, the following formula is serviceable :

352.	R.	Hydrargyri chloridi mitis,	℥ss	
		Unguenti zinci oxidi,	℥j.	M.

Or the following :

353.	R.	Bismuthi subnitratī,	℥ss	
		Unguenti zinci oxidi,	℥j.	M.

When the itching is severe, the following may be employed, whether the eruption be moist or dry :

354.	R.	Acidi carbolicī,	℥x	
		Unguenti zinci oxidi,	℥j.	M.

This will usually relieve the pruritus. Another ointment which generally acts very well :

355.	R.	Pulveris camphoræ,	℥j	
		Unguenti zinci oxidi,	ad ℥j.	M.

Half a drachm to a drachm of glycerine added to this will often prove advantageous.

All these may be called soothing applications, and are to be employed during the acute stages of this affection. They should be applied morning and evening, the excess of the former application being gently removed with a soft cloth previous to applying a fresh quantity.

After two or three weeks of treatment, improvement, as a rule,

ceases, and a change must be made. The following ointment is usually useful at this stage :

356. R.	Picis liquidæ,	f. 3j	
	Cerati simplicis,	3j.	M.

Or some other ointment, as the dilute nitrate of mercury or red oxide of mercury ointment, may be employed.

DR. TILBURY FOX, LONDON.

357. R.	Zinci oxidi,	āā	3j	
	Calaminæ preparatæ,		f. 3 iss	
	Glycerini,		3vj.	M.
	Aquæ rosæ,	q. s. ad		

Used in eczema generally when the surface is tender and red. The part should be lightly bandaged with this lotion, which should be used very freely, so as to keep the surface moist, and exclude the air if possible. If the itching or sensation of burning is bad, the following may be used :

358. R.	Potassii cyanidi,	gr. iij-v	
	Adipis,	3j.	M.

In the second, or exudative stage, ointments should be generally avoided. In proportion as the heat or itching, the redness or swelling disappears, astringents should be employed ; but whenever there are signs of irritation, soothing and emollient remedies should be used externally. This treatment, together with aperient tonics, generally controls the discharge. The diseased part should be most gently handled at all times. Soap should not be used, and no friction with the clothes allowed. When the third, or scaly stage, is reached, it is often still highly necessary to avoid the use of any application which acts as an irritant, for irritability is one of the chief characteristics of the skin of an eczematous subject.

Astringents are generally called for in simple forms of eczema, such as is seen in the scalp. Our author prefers, in connection with tonics, the use at the outset of :

359. R.	Sodii biboratis,	℥ij	
	Plumbi acetatis,	gr. ij	
	Glycerini,	f. 3j	
	Adipis,	3j.	M.

A stronger ointment is :

360. R.	Unguenti hydrargyri nitratis,	3ij	
	Glycerini,	f. 3ij	
	Adipis,	3ij.	M.

Where thickening and induration finally remain, these may be regarded as secondary and ordinary results of congestion, and should be treated accordingly, by revulsives. Our author often uses :

361. R.	Argenti nitratis, Ætheris nitrosi,	℥ij f. ʒj.	M.
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Or :

362. R.	Olei juniperis pyrolignei, Adipis,	f. ʒj-ij ʒj.	M.
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Should this not suffice, order :

363. R.	Hydrargyri iodidi rubri, Adipis,	gr. v-xv ʒj.	M.
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The above line of procedure holds good in the case of children ; but here, in addition, an absorbent powder is serviceable. It may be :

364. R.	Zinci oxidi, Calaminæ preparatæ, Amyli,	āā ʒ ss.	M.
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Our author prefers a lead or calamine lotion, with exclusion of air, and at night a layer of elder-flower ointment, to anything else, as simple applications in *eczema infantilis*.

365. R.	Pulveris aluminis, Infusi rosæ,	ʒij Oj.	M.
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Used in *eczema sine crustis*.

366. R.	Potassii cyanidi, Sulphuris, Potassii bicarbonatis. Cocci cacti, Adipis,	gr. v āā ʒ ss gr. j ʒj.	M.
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In *eczema* with pruritus.

367. R.	Camphoræ, Alcoholis, ad solvendum,	ʒ ss q. s.	
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Adde :

	Zinci oxidi, Amyli,	āā ʒ ss.	M.
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Use as a powder to allay the *burning heat of eczema*.

368. R.	Camphoræ, Tincturæ conii, Cerati adipis,	gr. viij f. ʒij ʒj.	M.
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369. R.	Saponis mollis, Aquæ bullientis,	ʒj Oj.	M.
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Scent with some essential oil, and use in the second stage of *eczema*, to counteract the infiltration.

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|---------|--|----|---------------------|----|
| 370. R. | Saponis mollis,
Alcoholis,
Olei cadini,
Olei lavendulæ, | āā | f. 3 j
f. 3 iss. | M. |
|---------|--|----|---------------------|----|

This preparation is more elegant than HEBRA'S "Tinctura saponis viridis cum pice."

- | | | | | |
|-------------------------------|--|--|-------------------------|----|
| 371. R. | Olei juniperis pyrolignei,
Adipis, | | f. 3 j-viiij.
3 j. | M. |
| Mix with 3 ss of mutton suet. | | | | |
| 372. R. | Picis liquidæ,
Camphoræ,
Adipis, | | f. 3 j
gr. x
3 x. | M. |

Dr. WATSON recommends in chronic eczema:

- | | | | | |
|--|---------------------------|--|-------------|----|
| 373. R. | Tar ointment,
Calomel, | | 3 j
3 j. | M. |
| To which cosmoline may be added to dilute the tar, if it be too stimulating. | | | | |

DR. ROBERT W. TAYLOR, NEW YORK.

In a case of eczema of the head in infants, Dr. TAYLOR (*Med. News*, 1891,) follows this course of treatment. The affection usually begins in a small patch in the scalp, and is irritated into what is sometimes a pitiable condition by persistent washing and the application of improper remedies. Often the physician must correct a condition of hyperacidity of the stomach by means of alkalies and a proper regulation of diet. About every other day a powder consisting of two grains each of calomel and sodium bicarbonate should be given; sometimes it is desirable to add a little Rochelle salts. After the crusts have been removed by the local application of vaseline, the following ointment should be kept constantly applied.

- | | | | | |
|---------|---|--|-------------------------|----|
| 374. R. | Camphor,
Calomel,
Goulard's extract,
Vaseline, | | gr. x
āā 3 j
3 j. | M. |
|---------|---|--|-------------------------|----|

SAALFELD (*Arch. of Pediatrics*, 1891,) advises in these cases that the amount of nourishment be diminished, fatty matters be eliminated as much as possible from the diet, and habitual constipation corrected. The crusts on the head and face are to be removed after first softening with olive oil, and the following ointment applied:

- | | | | | |
|---------|--|--|--------------------------------------|----|
| 375. R. | Acidi borici,
Zinci oxidi,
Vaseline,
Amyli, | | gr. xlv
gr. lxxv
āā gr. ccccl. | M. |
|---------|--|--|--------------------------------------|----|

If there is general eczema from scrofulous taint, the question of proper nutrition must be taken into consideration, and probably cod-liver oil and phosphorus may be found of advantage. Locally, only bland applications, as vaseline with non-irritating powders, should be employed. Tar ointments should not be used at all, as they are too severe for the skin of a child.

The following is suggested as a local application in eczema (*Four. de Med. de Paris*, 1891).

- | | | | |
|---------|----------------|---------|-------|
| 376. R. | Thymol, | gr. xxx | |
| | Oxide of zinc, | | |
| | Starch, | āā | 3vj |
| | Lard, | | 3iss. |
| | | | M. |
- Apply twice a day to the affected parts.

For the eczema about the anus and genital organs, LUSTGARTEN advises :

- | | | | |
|---------|--------------------|-------------|----|
| 377. R. | Oleate of cocaine, | gr. xv-xxx. | |
| | Lanolin, | 3vj. | |
| | Olive oil, | f. 3ijss. | M. |

This ointment should be applied twice daily, and some absorbent powder dusted over the affected part. Warm soap baths are advocated. For pruritus ani this authority advises cocaine suppositories.

ERYTHEMA.

There are several special forms of skin affections grouped under this term, each of which differs in its essential nature from the others, if not in the possession of the one symptom of redness which gives the name to the entire group. The forms known as erythema multiforme and nodosum have come to be looked upon by the profession, or at least a large part of the profession, as belonging to the group of infectious diseases, probably as a single affection with varying manifestations. The treatment of these diseases may be briefly illustrated by the formulas for local use under the heading *acute erythema* below, combined with general supportive and antiseptic measures. Not infrequently an erythema of reflex nervous origin is met, arising from some irritation at a point more or less remote from the eruption. Where this point of causation exists in the bowels, "Startin's mixture" may well be exhibited. The erythema arising from drug poisoning is of course to be treated by the withdrawal of the drug. In general the physician is to be cautioned not to depend on any one

remedy for erythematous conditions, but rather to determine from the first the cause and nature of each separate case, directing the treatment at once to antagonize these elements.

DR. L. DUNCAN BULKLEY, NEW YORK.

In *erythema simplex*, as well as in other acute skin diseases, this author has derived great benefit from the use of "Startin's mixture:"

- | | | | |
|---------|-----------------------------|------------|----|
| 378. R. | Magnesiae sulphatis, | ℥j | |
| | Ferri sulphatis, | ℥j | |
| | Acidi sulphurici aromatici, | f. ℥ss | |
| | Tincturæ gentianæ, | f. ℥j | |
| | Aquam, | ad f. ℥ij. | M. |
- One teaspoonful after meals.

J. M. DA COSTA, M. D., PHILADELPHIA.

- | | | | |
|---------|----------------------------------|----|------|
| 379. R. | Unguenti picis, | | |
| | Unguenti hydrargyri oxidi rubri, | āā | ℥ss. |
- To be applied morning and evening, in *chronic erythema*. Internally, *Donovan's solution*, gtt. x, thrice daily.

In *acute erythema*, a useful sedative ointment is:

- | | | | |
|---------|------------------------------|----|-------|
| 380. R. | Liquoris plumbi subacetatis, | | |
| | Glycerini, | āā | f. ℥j |
| | Cerati simplicis, | | ℥vj. |
| | | | M. |

Or:

- | | | | |
|---------|----------------------------|---------|----|
| 381. R. | Cerati plumbi subacetatis, | ℥vj | |
| | Glycerini, | f. ℥ij. | M. |

PROF. J LEWIS SMITH, OF NEW YORK.

- | | | | |
|---------|-----------------------|----|------|
| 382. R. | Pulveris zinci oxidi, | | |
| | Lycopodii, | āā | ℥vj. |
| | | | M. |

To be dusted occasionally over the inflamed surface in the *erythema intertrigo* of infancy, when the inflammation is severe and accompanied by moisture.

In slight cases of this affection, due to friction of opposing surfaces of the skin, or to the irritation of certain discharges, if not accompanied by moisture and destruction of the epidermis, dusting the surface thickly with *powdered starch*, so as to prevent attrition, will be all the treatment required. The disease may also be satisfactorily treated in most cases by the following wash:

- | | | | |
|---------|------------------|-----------|----|
| 383. R. | Cupri sulphatis, | gr. ij-iv | |
| | Aquæ rosæ, | f. ℥ij. | M. |

To be kept constantly applied by means of linen saturated with it and pressed between the inflamed surfaces.

When this disease is caused by frequent acid stools, remedies which cure the diarrhœal affection also cure the erythema.

FAVUS (SCALD-HEAD).

DR. ROBERT W. TAYLOR.

(*Med. News*, 1891.) The hair should be cut short, the scalp thoroughly rubbed with vaseline, and the scabs removed as rapidly as they form. The treatment must be persisted in for a long time, since, as a rule, the disease is very intractable. After the scalp has been thoroughly cleansed it should be washed three times a day with a solution of bichloride of mercury (1 : 3,000), followed by an inunction of the following:

384.	R.	Corrosive sublimate,	gr. ij	
		Vaseline,	3j.	M.

In some cases a strong solution of corrosive sublimate in alcohol (gr. viij to the fluid ounce of alcohol) might be used, if constant care be had for symptoms indicating the absorption of the mercury.

SCHUSTER, of Aix-la-Chapelle, (*Monatsh. f. Dermatol.*, 1889,) has devised an arrangement for the employment of sulphurous acid gas in the treatment of favus. A cardboard cylinder is made to fit the head like an ordinary high silk hat; inside there is a netting arranged to hold a saucer containing sulphur. A top can be adjusted. When the cylinder is applied, the sulphur is placed within, upon the netting, and lighted, and the top applied to exclude the air. When all the oxygen is used up, the combustion of the sulphur ceases, but the cylinder has become filled with the gas, and the latter is then retained in contact with the "scald head" for some time. It is stated that by this method the fungus which causes favus is killed, and the disease is not very liable to recur, as is usually the case.

KAPOSI recommends (*Med. News*, 1891,) the following lotion in the treatment of favus:

385.	R.	Acidi carbolici,	gr. lxxv	
		Glycerini,		
		Alcoholis,	āā	f. 3j. M.

After allowing this solution to remain on the head for twenty-four

hours, and upon the removal of all hair, the head is to be washed twice a day with green soap. After each washing the lotion should be reapplied.

DR. HENRY G. PIFFARD, OF NEW YORK.

The treatment of favus is to remove the crusts, to epilate the part, and thoroughly rub in a solution of corrosive sublimate, gr. ij to water f. 5j. Sulphur or turpeth ointment, gr. xx-xxx to lard 5j, will destroy the parasite upon the surface, but in a few weeks the disease will return.

DR. L. A. DUHRING, PHILADELPHIA.

In favus, or scald head, the two remedies are parasitocides and depilation. The hair is first to be cut as short as possible with scissors, after which the crusts are to be removed by means of poultices or olive oil and soft soap and hot water. The hairs are then to be extracted with a pair of forceps. Immediately after this has been done, a parasiticide is to be well rubbed into the part. Any of the following may be chosen :

386.	R.	Hydrargyri chloridi corrosivi,	gr. j-ij	
		Aquæ,	f. 3j.	M.

Or,

387.	R.	Sodii sulphitis,	3j	
		Aquæ,	f. 3j.	M.

Or,

388.	R.	Acidi sulphurosi,	f. 3ss	
		Aquæ,	f. 3j.	M.

Or,

389.	R.	Sulphuris loti,	3ss	
		Cerati simplicis,	3j.	M.

Or,

390.	R.	Hydrargyri sulphatis flavi,	3ss	
		Cerati,	3ss.	M.

The tarry preparations are also valuable, either alone or in combination with other more active remedies. From two to four months are usually necessary for a cure.

HERPES.

PROF. LELOIR, OF PARIS.

M. LELOIR (*Gaz. Hopiteaux de Paris*, 1890; *Med. News*, 1890) uses the following solution for local application in the treatment of ordinary herpes:

391. R.	Resorcine,	gr. xxx	
	Hydrochlorate of cocaine,	gr. vijss—xxx	
	Tannic acid,	3 iss	
	Alcohol (90 per cent.),	f. 3 iij.	M.

Or:

392. R.	Hydrochlorate of cocaine,	gr. xv	
	Extract of cannabis indica,	3 ijss	
	Spirit of peppermint,	f. 3 iijss	
	Alcohol (90 per cent.),	f. 3 iij.	M.

Or:

393. R.	Menthol,	gr. xxx	
	Alcohol,	f. 3 iv.	M.

It is well to cover the spot where the herpes is apt to appear in individuals in whom the disease is liable to recur, with some impermeable dressing to exclude the air.

DR. L. DUNCAN BULKLEY, OF NEW YORK.

In *herpes zoster*, this author has found the following most efficient in controlling the neuralgic pain:

394. R.	Zinci phosphidi,		
	Extracti nucis vomicæ,	āā	gr. ½.
This amount in one pill every three hours.			

For local treatment, he dusts the whole of the affected part with powdered starch, then dusts a wide bandage of muslin with starch, and covers with it the diseased surface. This bandage is not to be removed for a week or longer.

DR. LOUIS A. DUHRING, OF PHILADELPHIA.

In *herpes zoster* the vesicles should not be punctured, but preserved, as far as possible, intact. Dusting powders, anodyne ointments and anodyne lotions may be employed. Carbolic acid, gr. x to aquæ f. 3j, is often of service; or the part may be painted with

flexible collodion, containing morphia (gr. x to f.ʒj), to be painted over several times a day. Or with:

395. R.	Fld. extr. grindeliæ robustæ,	f. ʒss-j	
	Aquæ,	f. ʒj.	M.

Use as a lotion.

One of the most successful plans of treating zoster is by the *galvanic current*. It offers a prompt and effectual means of relief. The constant current is to be applied directly to the seat of the eruption, and over the course of the nerves, by sponge electrodes. Five to ten cells are sufficient in the majority of cases, the application being continued from fifteen to thirty minutes at each sitting, and repeated every day, or twice a day, until recovery takes place. The after-pains of zoster are also successfully treated by the galvanic current.

In herpes of the face and cornea, WOOD (*Internat. Med. Jour.*, 1892,) counsels that pain be relieved by anodynes, and that a weak solution of eserine be applied to the cornea, combined with the frequent use of boracic acid in a weak solution of mercuric chloride.

In the treatment of herpes zoster of the mouth, HUGENSCHMIDT, of Paris, (*Med. News*, 1890,) advises that the part be protected from rubbing, and that on a pad of cotton the following ointment be applied:

396. R.	Muriate of cocaine,		
	Muriate of morphia,	āā	gr. ij
	Borate of sodium,		ʒ iss
	Honey,		f. ʒj.
			M.

Use a portion, the size of a pea, several times a day.

DR. FRANK LYDSTON, OF CHICAGO.

This gentleman (*Med. News*, 1890,) states that the treatment of *herpes progenerialis* is usually simple, but sometimes the disease is very resistant. As a rule, only simple dusting powders or astringent washes are necessary locally. He uses a powdered oleate of zinc in his own practice with satisfaction. Calomel, lycopodium, oxide of zinc, subnitrate and subcarbonate of bismuth, are all useful. Solutions of iodide of zinc (five or ten grains to the ounce of water), or alum (twenty or thirty grains to the ounce of water) are useful as lotions. It may be necessary to touch the herpetic spots with nitrate of silver. When the lesions are painful, cocaine or morphine may be added to the powder. The parts must be kept clean and dry,

and sometimes circumcision is advisable. Tonics, as quinine, iron and strychnine, and when there is nervous irritability, bromide of potassium, are to be used. In some chronic cases arsenic will be found beneficial.

In the female, in menstrual herpes, bromides with small doses of ergot for a week or more before the period will prove of some value.

FEULARD (*L'Union Méd.*, 1890,) states that when herpes of the genitals is not very severe, lotions with pure water, vinegar and water or aromatic wine are quite sufficient for local applications. Where the resultant ulcers are bad, they may be touched with nitrate of silver, although ordinarily, dusting with oxide of zinc or bismuth subnitrate suffices. Where there is a tendency to recurrence, a bit of cotton wet with astringent solution may be kept in contact with the part. Where it arises from a digestive disturbance, abstinence from alcohol, the use of non-exciting foods, and alkaline waters, are advisable.

IMPETIGO.

The remarks upon the antiseptic method in dermatology may here with propriety be referred to (p. 296.) ORTIZ has stated that such a course in the treatment of impetigo has been followed with rapid cure; and it is probable that not only one but all forms of this disease are infectious according to late researches, and are therefore all amenable to such a plan of therapeusis.

J. M. DA COSTA, M. D., PHILADELPHIA.

397. R. Unguenti picis,
Unguenti hydrargyri oxidi rubri, āā ℥ ss. M.
For *impetigo*. To be rubbed in morning and night.

If this fails, apply:

398. R. Cupri sulphatis. ℞i-ij
Aquæ, f. ℥j. M.

Or use the solid sulphate of copper.

TILBURY FOX, M. D., M. R. C. P., ETC.

399. R. Plumbi acetatis, gr. xv
Acidi hydrocyanici diluti, ℥xx
Alcoholis, f. 3 ss.
Aquæ, f. 3 vj. M.

Use in *impetigo*, as a lotion.

Subsequently :

400. R.	Hydrargyri ammoniati,	℥j	
	Olei olivæ,	f. 3j	
	Adipis,	3j	
	Olei rosæ,	℥vj	
	Tincturæ tolutanæ,	gtt.xx.	M.
As an ointment.			

DR. HENRY G. PIFFARD, OF NEW YORK.

The treatment of *impetigo contagiosa* is simple. All that is necessary is to remove the crusts and apply a mercurial and sulphur ointment two or three times a day, and in a short time all traces of the affection will disappear, except the bluish-red discolorations which mark the site of the eruption, which will gradually fade away.

LEPRA.

PROF. UNNA, OF VIENNA.

(*Four. of Cutan. and Gen. Urin. Dis.*, 1887). Recognizing the bacillary origin of the disease, UNNA recommends as external applications such remedial substances as chrysarobin, pyrogallic acid, ichthyol, resorcin, and has reported some favorable results.

401. R.	Chrysarobin,		
	Ichthyol,	āā	5
	Salicylic acid,		2
	Lanolin,	100.	M.

Or,

402. R.	Pyrogallic acid,		
	Ichthyol,	āā	5
	Salicylic acid,		2
	Lanolin,	100.	M.

When the skin is delicate :

403. R.	Resorcin,		
	Ichthyol,	āā	5
	Salicylic acid,		2
	Ointment,	100.	M.

Or,

404. R.	Ichthyol,	10	
	Salicylic acid,	2	
	Ointment,	100.	M.

The following is quite mild :

405. R.	Chrysarobin,		
	Ichthyol,	āā	5
	Salicylic acid,		2
	Ointment of oxide of zinc,		100.
			M.

Internally such remedies as chaulmoogra oil, strychnine, salicylate of sodium, and ichthyol, should be associated.

In true leprosy, no cure is known. Of late, much has been said of "gurjun oil," obtained from a species of *Dipterocarpus*, and of cashew-nut oil, from the fruit of the *Anacardium occidentale*. Dr. VON SOMEREN (*Medical Times and Gazette*, April, 1874) believes the latter tends to disperse the tubercles. Chaulmoogra oil has lately been highly lauded in this affection (BERGÉ, *New Orleans Med. and Surg. Jour.*, 1891), but this praise is by no means universal. It is given by BERGÉ in doses of ten drops of the oil in a spoonful of water three times daily, gradually increasing to forty-five drops if it can be borne. This author speaks of it as a specific, although this praise is probably quite too great. MITRA, of Kashmir (*Amer. Jour. Med. Sci.*, 1891), speaks in terms of moderate praise of gurjun oil, chaulmoogra oil, lanolin and other substances as palliatives, and narrates the benefits he has seen in his practice from nerve-stretching in the anaesthetic variety of leprosy in its early and painful stages. The measure is, however, only a temporary one.

LUPUS.

This affection, formerly looked upon as an individual disease, has come to be regarded by the profession as a dermal form of tuberculosis, and as such has been subjected to the recent efforts to cure by the "lymph" suggested by Prof. ROBERT KOCH, of Germany, and Prof. SAMUEL G. DIXON, of this country. In this form of tuberculosis, too, more than in any other, have the good effects of the remedy been seen. After an injection of *tuberculin*, as the lymph has been named, until the active principle may be isolated, the lupus patch grows rapidly red and swollen, in other words, becomes the seat of inflammatory action. Under the influence of this inflammation, the tubercular tissue is thrown off, and a simple regenerative process takes its place and goes on to the cure of the affection. The

injections required to bring about such a result vary greatly in number with each case; they should be given every other day or oftener, as the patient can bear, and should be persisted in.

UNNA (*Deut. Med. Wochensch.* 1891,) has sought to use the tuberculin necessarily present in the bodies of lupus patients. He has covered the affected parts with a plaster exercising a favorable influence on the disease, as zinc-sublimate-plaster gauze or salicylated-creosote-plaster gauze, and at the same time acting as a protective. Over this plaster he used active massage. In twenty-four hours the parts became pallid, and on practising manipulation again, a characteristic tuberculin reaction appeared. This method has not been confirmed.

OTHER MEDICAL MEASURES.

SAALFELD (*Deut. Med. Wochensch.*, 1889,) has used balsam of Peru with some benefit, although no actual cures are reported. He regards its employment, more than that of any other known local agent, as preparing the affected part for the more radical measures, as scraping or enucleation.

BROOKE (*Brit. Jour of Dermatol.*, 1890) recommends the following ointment, particularly in cases where the skin is not broken, and where irritation may not be permitted:

406. R.	Oleate of mercury (from 2½ to 5 per cent.),	℥j	
	Salicylic acid,	gr. x-xv	
	Ichthyol,	℥xv	
	Oil of lavender or citronella,	q. s.	M.

It is best to begin with the milder ointment and gradually increase the strength; but the skin should not be broken by the use of the remedy. If it shows signs of breaking, the ointment should be weakened with pure lard. As a rule, the longer the application is made, the better—twenty minutes at night, ten minutes in the morning. A little starch powder may be dusted on after each application to do away with the greasy sensation.

UNNA advises (*Monatsh. f. prakt. Dermatol.*, 1888) that the following lotion be used, the application being made by first puncturing the nodules and then with a pointed stick inserting bits of cotton soaked in the lotion into the punctures:

407. R.	Corrosive sublimate,	℥	
	Carbolic acid (or creosote),	4	
	Alcohol,	20.	M.

The cotton is allowed to remain for a few minutes (10-15). In a few days the parts thus attacked will have nearly disappeared, and other nodules may be similarly dealt with. The writer regards this as a more effective plan than the similar one with *nitrate of silver*.

Potassium cantharidate has been employed with some apparent success by a number of German dermatologists. It is administered in interstitial injections. The sodium salt has also been used in the same way for the same purpose, and is said to be somewhat less painful. These remedies doubtless affect the lupus by causing a violent inflammation in the neighboring tissues, by which the entire mass of lupus is thrown off with the irritant.

HEBRA (*Zeitsch. f. Therapie*, 1890,) states that the following formula based upon saponated glycerine (p. 305) is a marked antibacillary application, and that its effects in cases of lupus are very marked:

408.	R.	Saponated glycerine,	90	
		Salicylic acid,	5	
		Cresote,	5.	M.

Aristol has been announced as a local remedy of value, but this is disputed. It probably is best used after curetting of the lupus patch has been performed.

Sprays of carbolic acid solution have been highly commended by certain writers, absolute cures being claimed for the measure.

The editor would suggest as an application to the surface before the skin is broken a four or five per cent. solution of *cocaine*, having seen several patches regarded by him as early lupus disappear entirely in several weeks upon use of this substance. Injections of *peroxide of hydrogen* have also seemed of some value to him in the treatment of advanced cases.

Ordinarily the method of procedure in cases of lupus where the disease is marked, nodules developed and the skin broken, is to scrape with a curette, or cut away with the knife all the visible diseased tissue, following up the scraping with the ordinary methods of inducing rapid and complete healing. As a rule, however, all such measures are but temporary.

LICHEN.

DR. L. DUNCAN BULKLEY, NEW YORK.

The eruption of acute lichen arises from digestive diseases, and will yield to an effective cathartic, followed by a course of "Startin's mixture." (F. 378.) To check the itching, a lotion of an ounce of bicarbonate of soda to a pint of water, may be used.

ERASMUS WILSON, F. R. S., ETC., LONDON.

The constitutional treatment of lichen requires mild aperients, followed by bitters and mineral acids, by chalybeates and quinine. In chronic cases arsenic will generally effect a cure.

The local treatment of lichen calls for the use of ablutions with the juniper-tar soap, tepid bathing, and anti-pruriginous and moderately stimulating lotions.

But the most certain and powerful *anti-pruriginous lotion* is:

409. R.	Olei juniperi pyrolignei,		
	Alcoholis,	āā	f. ℥ j
	Aquæ,		f. ℥ vj. M.

This is very successful in *lichen urticatus*.

DR. TILBURY FOX, LONDON.

In *lichen circumscriptus*, an alkaline course is beneficial; and if there be any tendency to rheumatism, bromide of potassium may be given in addition. In this variety of lichen, the following ointments are serviceable:

410. R.	Unguenti hydrargyri nitratis,	℥ ij	
	Adipis,	℥ vj.	M.
411. R.	Unguenti hydrargyri ammoniati,	℥ j	
	Adipis,	℥ viij.	M.

In *lichen agrius*, maceration with glycerine, or the following, is useful:

412. R.	Sodii biberatis,	℥ j-ij	
	Glycerini,	f. ℥ j	
	Adipis,	℥ j.	M.

Or paint with:

413. R.	Argenti nitratis,	gr. ij-x	
	Aquæ,	f. ℥ j.	M.

When the disease is very chronic, and there is much thickening of the skin in general, and in *lichen pilaris*, a course of bicianide of mercury is necessary.

414. R. Hydrargyri bicianidi, gr. j
Tincturæ cinchonæ compositæ, f. ʒ iv. M.
A dessertspoonful thrice daily.

This will cause an absorption of the plastic material poured out into the derma; and local stimulation to the skin, with sulphur vapor baths, may then be employed.

PROF. HARDY, FACULTÉ DE MÉDECINE DE PARIS.

415. R. Hydrargyri chloridi mitis, gr. xv.
Acidi tannici, gr. xxx-l
Adipis, ʒ j. M.
To be applied several times a day in lichen. Alcoholic and vapor baths. Bitter infusions with bicarbonate of soda.

416. R. Potassii cyanidi, gr. ¼-iss
Adipis, ʒ j. M.
This ointment is useful in calming the itching occasioned by lichen.

PHTHEIRIASIS, PEDICULOSIS.

DR. L. DUNCAN BULKLEY, OF NEW YORK.

The cutaneous phenomena caused by the presence of lice are of frequent occurrence, especially in dispensary and hospital practice. The treatment employed by our author for lice in the head is by soaking three times in *kerosene* oil within twenty-four hours; then washing thoroughly with castile soap and warm water, and applying afterwards *cod-liver oil*, if the head be very sore, or zinc ointment, or the *white precipitate* diluted three times. He has used this plan in private practice, and does not find that it is objected to; whereas the thoroughness and certainty of cure by a single soaking renders it a treatment to be recommended. It kills the nits, and they become detached on repeated combing, which does not happen when an agent has been used which does not penetrate them. In private practice good results are obtained, but not so quickly, by means of highly-scented white precipitate or citrine ointment, diluted three times; and the nits may be separated by means of a wash of equal parts of *aetic acid* and *cologne*.

DR. LOUIS A. DUHRING.

The various remedies used to destroy lice comprise the *mercurial* preparations, *staphisagria* (seeds of *Delphinium staphisagria*), *pyrethrum* (flowers of *Pyrethrum carneum* and *roseum*), *sulphur*, *sabadilla*, *cocculus indicus*, *tobacco*, *carbolic acid* and *petroleum*. They are employed in the form of ointment, powder or lotion, as may be deemed most convenient.

For lice in the hair, powdered sabadilla or staphisagria may be sprinkled throughout the hair. Decoction of *cocculus indicus* is a reliable remedy. Where eczema or excoriations are present, white precipitate, gr. x-xv to cerati simplicis ʒj, will be found valuable.

The nits are to be removed by repeated washings with alkaline or acid lotions, such as of soda, borax, soft soap, vinegar or alcohol.

In body lice, the clothes should be baked or boiled to kill the ova, or where this is impossible, an ointment of powdered staphisagria, ʒij to ʒj, applied freely to the skin, will cause the parasites to disappear temporarily. Lotions of carbolic acid, f.ʒj-ij to aquæ Oj, with glycerine ʒj, will be found useful in allaying the irritability of the skin. The undergarments should be changed frequently, and baths of hot water and soap be often taken.

For crab lice, which infest the pubis, the following lotion is most effective :

417. R.	Hydrargyri chloridi corrosivi,	gr. ij-iv	
	Alcoholis,		
	Aquæ,	āā	f. ʒj. M.

For local use only. To be well rubbed in.

The tincture of *cocculus indicus* is another cleanly and effectual remedy. The parts should be well washed twice daily with soft soap and water, and the remedy applied for several days after the pediculi have been destroyed, so as to insure complete destruction of the ova. Infusion of tobacco, white precipitate ointment and mercurial ointment are also well-known remedies.

The following is quoted from the *Four. of Cutan. and Gen-Urin. Dis.*, as a valuable parasiticide, both for pediculi and vegetable parasites :

418. R.	Salicylic acid,	gr. xlv	
	Borax,	gr. xv	
	Balsam of Peru,	gr. xxx	
	Vaseline,	ʒv	
	Ethereal essence of anise,	gtt. v	
	Essence of bergamot,	gtt. xx.	M.

The following formula was formerly used with marked success in the venereal wards of the Philadelphia Hospital for crab lice :

419. R. Acidi carbolicī, f. ℥j
 Ol. olivæ, f. ℥j. M.
 Rub on the parts once a day.

PITYRIASIS.

DR. LOUIS A. DUHRING.

Where there is obvious functional disturbance of some of the organs of the body, there is need for general constitutional treatment. The preparations of iron are exceedingly valuable, and may be given for some months. The following will be found serviceable :

420. R. Tincturæ ferri chloridi, āā f. ℥j
 Acidi phosphorici diluti, f. ℥ij. M.
 Syrupi limonis,
 Half a teaspoonful thrice daily in a half glass of water.

In some cases arsenic in small doses may be advantageously combined with the iron :

421. R. Liquoris potassii arsenitis, f. ℥j
 Vini ferri, ad f. ℥iv. M.
 One teaspoonful three times daily, directly after meals.

Pityriasis capitis calls for special directions. Any accumulation of sebum or scales on the scalp must be removed. Olive or almond oil should be rubbed in at night, and in the morning the scalp washed with warm water and soap. A stronger preparation than ordinary soap is the following valuable one introduced by HEBRA :

422. R. Saponis viridis, ℥ viij
 Alcoholis, f. ℥iv.
 Dissolve and filter. To be used as a scalp-wash.

A tablespoonful may be poured upon the head, together with a small quantity of water, and rubbed in vigorously. The hair having been well dried, in the majority of cases moderately stimulating, oily preparations will be found of benefit. Carbolic acid acts very favorably, combined as follows :

423. R. Olei ricini, f. ℥iv
 Acidi carbolicī, m̄ xx
 Alcoholis, f. ℥ iss
 Olei amygdal. amarum, m̄ iv. M.
 To be applied after washing.

Of ointments, the red oxide of mercury and ammoniated mercury are especially useful, prepared in the strength of gr. v-x to ʒj.

424. R. Hydrargyri oxidi rubri, gr. v
Cosmolinae, ʒj. M.
For an ointment. A small quantity to be applied once a day.

The treatment by the washing and subsequent ointment must be persisted in for weeks or months. The prognosis is not favorable for a speedy termination of the complaint.

STERN prescribes the following in pityriasis of the scalp :

425. R. Ammoniated mercury, ʒijss
Green soap, ʒij
Lanolin, ʒiss. M.

DR. ROBERT W. TAYLOR, NEW YORK.

Advises in *pityriasis versicolor*, a parasitic affection, that the affected parts be thoroughly scoured, then washed with a solution of bichloride of mercury or of hyposulphite of soda. Later, after an alkaline bath, as by the soda, the following ointment should be applied :

426. R. Oil of cade, f. ʒj
Citrine ointment, ʒij.
Vaseline, ʒj. M.

DR. HENRY G. PIFFARD, OF NEW YORK.

This specialist has had the best success in this disease by a preliminary green soaping for several days, followed by tar ointment for a week or two, succeeded by a mercurial ointment (white precipitate or nitrate), and finally the prolonged use of some bland, oily preparation, as :

427. R. Hydrargyri sulphatis flavi, gr. xv
Unguenti rosarum, ʒj. M.

TILBURY FOX, M. D., LONDON, PHYSICIAN TO THE SKIN DEPARTMENT,
CHARING CROSS HOSPITAL.

428. R. Creosoti, gtt. xl
Glycerini, f. ʒijj
Aquæ, f. ʒvj-vijj. M.
Use in pityriasis.

429. R. Hydrargyri ammoniati, ʒj
Olei olivæ, f. ʒj
Adipis, ʒj
Olei rosæ, ʒvj
Tincturæ toltanæ, gtt. xx. M.
Use in *pityriasis capitis*.

PRURIGO.

DR. ROBERT W. TAYLOR, NEW YORK.

This gentleman (*Med. News*, 1890,) thus outlines the treatment of prurigo in a recent clinical lecture. Great care is to be taken in the matter of diet in children who present recurrent urticarial or papulo-crythematosus eruptions. Having secured a healthy condition of the gastro-intestinal tract, the next thing is to see that nothing irritating comes in contact with the skin. Dusting powder should be applied to all chafed places, and excessive bed-covering should be avoided. Quinine and arsenic have proved ineffective; cod-liver oil is usually beneficial where the stomach permits its employment. Where there is anæmia two or three grains of ammonio-citrate of iron may well be administered. Quinine should be avoided, as it is apt to intensify the pruriginous eruption.

The best local treatment consists in the use of warm (90°-96° F.) alkaline baths, followed by an inunction with 5 per cent. carbolized vaseline. The next day it is a good plan to make use of inunctions with vaseline, sweet or almond oil, applied three times a day to prevent the dryness of skin so common in these cases. The various anti-parasitides, as the tars, camphor, carbolic acid, cocaine, peppermint, naphthol, etc., may be used; but Dr. TAYLOR thinks inunctions and warm alkaline baths more beneficial:

ERASMUS WILSON, F. R. S., LONDON, ETC.

Arsenic, properly administered and watched, is, according to this authority, to be regarded as a specific in prurigo. Much may be accomplished toward the restoration of a healthy condition of the skin by ablutions with the juniper-tar and carbolic acid soap, frictions and manipulations with the hand, after the manner of the shampooer, the tepid bath, the sweating bath, used with discretion, and moderately stimulating local applications.

Prof. GAUCHER, of Paris (*Form. de la Facult. de Méd., Paris*) advises lotions of the following:

430.	R.	Chloral hydrate,	gr. xlv	
		Alcohol,	f. $\frac{3}{4}$ j	
		Water,	f. $\frac{3}{4}$ vj.	M.
Or,				
431.	R.	Crystallized carbolic acid,	gr. xxx	
		Alcohol,	f. $\frac{3}{4}$ ss	
		Glycerine,	f. $\frac{3}{4}$ j	
		Water,	f. $\frac{3}{4}$ x.	M.

Or,

432. R. Corrosive sublimate,
Cherry-laurel water,
Distilled water,

gr. iss—iij
f. $\frac{3}{4}$ ss
f. $\frac{3}{4}$ xij.

M.

PRURITUS.

ANTI-PRURITICS.

The best applications suited for temporary relief of pruritus are *vinegar, lemon-juice, weak solution of corrosive sublimate, tincture and watery solution of opium, creosote ointment and lotion, tar ointment*, and especially that of *juniper-tar, ointment of opium with camphor*, the *diluted nitrate of mercury ointment, ointment of lime, ointment of cyanide of potassium, lotion of hydrocyanic acid, aconite, acetate of ammonia, sulphuret of potash, chlorate of soda*, etc.

The following formulæ are all useful:

- | | | | |
|---------|--|--|----|
| 433. R. | Calcis hydratis,
Sodii carbonatis,
Tincturæ opii,
Adipis, | $\frac{3}{4}$ ij
$\frac{3}{4}$ ss
f. $\frac{3}{4}$ ss
$\frac{3}{4}$ j. | M. |
| 434. R. | Tincturæ opii,
Sulphuris sublimati,
Zinci oxidi,
Olei amygdalæ dulcis,
Adipis, | f. $\frac{3}{4}$ ss
$\frac{3}{4}$ ss
$\frac{3}{4}$ j
f. $\frac{3}{4}$ j
$\frac{3}{4}$ iij. | M. |
| 435. R. | Hydrargyri sulphureti rubri,
Tincturæ opii,
Sulphuris sublimati,
Adipis, | $\frac{3}{4}$ ij
f. $\frac{3}{4}$ ij
$\frac{3}{4}$ ss
$\frac{3}{4}$ v. | M. |
| 436. R. | Ammonii muriatis,
Pulveris hellebori albi,
Adipis, | $\frac{3}{4}$ j
$\frac{3}{4}$ ss
$\frac{3}{4}$ iij. | M. |

For local prurigo.

A local remedy frequently of service in allaying the itching of *prurigo senilis*, is glycerine applied with a sponge.

La Semaine Méd. publishes the following prescriptions for external use in pruritus:

437. R. Resorcin (pure),
Glycerine,
Water,

$\frac{3}{4}$ j
f. $\frac{3}{4}$ ij
f. $\frac{3}{4}$ iv.

M.

Or:

- | | | | |
|---------|---|---|----|
| 438. R. | Menthol,
Glycerine,
Water, | 3 iij
f. 3 ij
f. 3 iv. | M. |
| 439. R. | Ichthyol,
Glycerine,
Alcohol,
Water, | 3 j-iiij
f. 3 ij.

āā f. 3 ij. | M. |

The following formula for pruritus was published in the *Buffalo Med. and Surg. Journal*, 1890:

- | | | | |
|---------|--|--|----|
| 440. R. | Sodium hyposulphite,
Carbolic acid,
Glycerine,
Water, | 3 iijss
gr. xxx
f. 3 ij
f. 3 iijss. | M. |
|---------|--|--|----|

DR. JOHN H. BRINTON, of Philadelphia (*Therap. Gaz.*, 1892), uses the powdered leaf of the wild germandra (*Teucrium Scordium*) in doses of 10 or 12 grains, suspended in water, in the treatment of *pruritus ani*. It is given thrice daily, half an hour before meals, and acts as a stomachic. It is of no value in the pruritus ani of long standing from hæmorrhoids, but is valuable in the beginning of the disease.

DR. L. D. BULKLEY.

As a general anti-pruritic, Dr. BULKLEY offers to the profession the following formula:

- | | | | |
|---------|---|----------------|----|
| 441. R. | Pulv. gummi camph.,
Chloral hydratis,
Ung. aquæ rosæ, | āā 3 j
3 j. | M. |
|---------|---|----------------|----|

Rub the chloral and camphor carefully together till fluid results, then add slowly the ointment, mixing well.

This, when applied to the healthy skin, produces no effect, but possesses great power in arresting itching, without over-stimulating the parts. It does not answer when the skin is at all broken; it is then necessary to employ other less irritating agents; but the burning sensation caused on its first application lasts but a few moments, while the relief occasioned will last for hours, or even a whole day.

Prof. BESNIER, of Paris, advises (*Form. de la Fac. Mèd. de Paris*) that every evening the entire body be bathed in warm water containing for every basin a spoonful of the following:

- | | | | |
|---------|--|-----------------------|----|
| 442. R. | Carbolic acid,
Aromatic vinegar (French Phar.), | gr. xxxv
f. 3 xij. | M. |
|---------|--|-----------------------|----|

Afterwards the following should be powdered over the surface :

- | | | | |
|---------|-----------------------------------|----------------------|----|
| 443. R. | Salicylate of bismuth,
Starch, | gr. xv.
gr. cxxx. | M. |
|---------|-----------------------------------|----------------------|----|

For pruritus of the vulva CHARPENTIER recommends :

- | | | | |
|---------|---|---|----|
| 444. R. | Bichloride of mercury,
Ammonium muriate,
Distilled water, | gr. vij-xx
q. s.
f. $\frac{3}{4}$ viij. | M. |
|---------|---|---|----|

A spoonful of this is added to a glassful of warm water. To be used three times a day.

PSORIASIS.

DR. HENRY G. PIFFARD, OF NEW YORK.

This writer concedes *arsenic* a great repute in psoriasis, but believes that in the best practice it is being replaced by other means. *Balsam of copaiba*, four to eight capsules daily, is an efficient remedy. *Carbolic acid*, gr. j-ij thrice daily, is successful in some cases.

Local applications are strong alkalis, tar, emollients and baths.

The following formulæ are quoted in the *Med. News*, 1891, as used by FABRY in the treatment of psoriasis :

- | | | | |
|---------|---|---|----|
| 445. R. | Hydroxylamine muriate,
Spirits of wine,
Carbonate of calcium, | gr. iii-v
f. $\frac{3}{4}$ iss.
sufficient to neutralize. | M. |
|---------|---|---|----|

Or,

- | | | | |
|---------|---|---|----|
| 446. R. | Hydroxylamine muriate,
Pure water,
Calcium carbonate, | gr. xv
f. $\frac{3}{4}$ iss
sufficient to neutralize. | M. |
|---------|---|---|----|

PROF. GAILLETON, FRANCE.

As quoted in *Med. News*, 1890, the following is the outline of treatment employed by this distinguished physician :

The indications are: 1, to cleanse the surface; 2, to modify the local state; 3, to prevent recidivity. For the first indication alkaline baths with frictions with soap are to be ordered. In the treatment of the diseased surfaces the author uses *chrysarobin* or *pyrogallol*. The first is made into a pomade of the strength 1 : 10, and rubbed

into the surface; the second should be made of the strength of 1 : 15 in ordinary cases, but it must be watched lest it inflame the skin or prove toxic on absorption. Arsenic should be given in the acute stages, in the form of Fowler's solution preferably; or arseniate of soda may be given in syrup. Simple baths every day of 1, 2 or 3 hours' duration constitute an important part of treatment.

DUHRING (*Med. News*, 1892) in a clinical lecture states that in *chrysarobin* used with certain precautions we possess the best local treatment in our hands. It should be used in dilute form, having a marked tendency to cause inflammation. To allay this inflammation, which may very often follow the use of applications containing more than 5 to 15 grains of the remedy to the ounce of the diluent, he recommends the following:

447.	R.	Acidi borici,	℥ij	
		Zinci sulphatis,	gr.ij	
		Alcoholis,	f. 3j	
		Aquæ,	q. s. ad f. 3 iv.	M.

Apply three or four times a day.

J. M. DA COSTA, M. D., PHILADELPHIA.

448. R.	Unguenti hydrargyri oxidi rubri,			
	Unguenti hydrargyri,	aa	3 ij	
	Glycerini,		f. 3 ss	M.

For psoriasis; to be rubbed in morning and evening, when there are no vesicles, after washing the parts with castile soap.

Internally,

449.	R.	Liquoris arsenici et hydrargyri iodidi,	f. 3 ^{ss}	
		Extracti dulcamaræ fluidi,	f. 3 ^{ijss} .	M.
A teaspoonful thrice daily, after meals.				

Avoid fatty articles of diet, and those highly salted. The most important thing in skin diseases is to determine, not so much their character externally, as to ascertain with what internal conditions they are associated.

In the acute stages of psoriasis, the following may be used:

450. R.	Cerati plumbi subacetatis,	3ij	
	Glycerini,	f. 3j	
	Cerati simplicis,	3iv.	M.

Attention should be paid to the digestive system. Then, after the acute inflammatory condition has subsided, the red precipitate ointment (F. 448) may be employed, or:

451. R. Sulphuris iodidi, gr. x
Adipis, ℥ j. M.
To be rubbed in morning and evening.

Or,

452. R. Unguenti hydrargyri nitratis,
Unguenti picis, • āā ℥ ss. M.
Cerati adipis,

Internally, Donovan's solution, combined as above. (F. 449.)

Or,

453. R. Liquoris arsenici et hydrargyri iodidi, f. ℥ ij
Tincturæ cinchonæ compositæ, f. ℥ iij. M.
A dessertspoonful thrice daily.

TILBURY FOX, M. D., LONDON, PHYSICIAN TO THE SKIN DEPARTMENT, CHARING CROSS HOSPITAL.

454. R. Argenti chloridi, gr. v-xx
Cerati adipis, ℥ vj. M.
A useful ointment in this affection.

If the disease is slight and localized to a few spots only, treatment may be commenced at once with tarry applications, for the scales are thereby removed sufficiently well.

455. R. Olei juniperis pyrolignei, f. ℥ ij
Olei olivæ, f. ℥ j
Adipis, ℥ j. M.
To be used night and morning.

Or,

456. R. Creosoti, gtt. vj
Unguenti hydrargyri, gr. xv
Adipis, ℥ ij. M.

In chronic cases, with thickening of the patches, or where there is much elevation of the disease, as in the *nummular* variety, a more decided impression may be produced by:

457. R. Picis liquidæ,
Alcoholis, āā f. ℥ ij. M.
To be rubbed in with flannel.

When there is a tendency to "discharge," use:

458. R. Unguenti hydrargyri nitratis, ℥ ij
Glycerini, f. ℥ ij
Linimenti camphoræ, f. ℥ j. M.

PROF. MORITZ KOHN.

459. R. Acidi carbolici, gr. xv
 Pulveris glycyrrhizæ et syrupi, q. s. M.
 Divide into twenty pills. Give at first six to nine a day, and increase gradually to twenty a day.

Professor HEBRA has also obtained good results from these pills in psoriasis. But it must not be forgotten in using them that the exhibition of large doses of carbolic acid irritates the kidneys and provokes the passage of albumen in the urine.

460. R. Sulphuris loti, aa 3ss
 Extracti gentianæ, q. s. M.
 Althææ pulveris, q. s.
 Divide into twenty pills. From two to ten a day, in squamous skin affections. Sulphur baths.

BESNIER prescribes the following ointment for psoriasis of the scalp, if the disease be limited and there be no irritation:

461. R. Salicylic acid, aa gr. xxiv
 Pyrogallic acid, gr. xlvij
 Ichthyol, aa
 Soft (potash) soap, aa 3j. M.
 Vaseline, aa
 Apply on alternate days, and with caution.

RHUS TOXICODENDRON.

The poison oak, *Rhus toxicodendron*, and the poison ivy, *Rhus toxicodendron*, var., *radicans*, are so common over the greater portion of the United States, that cases of poisoning from them are exceedingly frequent.

The irritant action of the toxicodendric acid may be prevented by rubbing thoroughly the hands with soft soap or other active alkali before touching specimens. Of local applications, Professor J. C. WHITE, of New York, recommends the following:

462. R. Hydrarg. chlor. mitis, 3j
 Aquæ calcis, Oj. M.
 Applying as an evaporating lotion to the affected parts for half an hour or an hour at a time, two or three times a day.

Or use the following in the same manner:

463. R. Hydrarg. chlor. corrosivi, gr. i-ij
 Aquæ, f. 3j. M.

Or,

464. R. Plumbi acetatis, ℥j
 Aquæ, Oj. M.
 Employ as cold lotion to the part.

Dr. FREDERICK HORNER, of Virginia, has found prompt and satisfactory results from the yellow wash :

465. R. Hydrarg. chlor. corrosiv., gr. xx
 Aquæ calcis, f. ℥ v. M.
 Shake well, and apply with soft pieces of linen.

(This should not be used on children, the sublimate being liable to absorption; and all sublimate solutions should be applied with the utmost caution, as they often irritate extremely.)

Dr. S. A. BROWN, U. S. N., recommends as a specific the following. (*N. Y. Medical Record*, 1878) :

466. R. Brominii, gtt. x-xx
 Olei olivæ, f. ℥ j. M.
 Rub gently on the affected part three or four times a day.

Dr. JAMES S. BAILEY, of New York, has found the following prescription to cure generally at the first trial. (*Medical and Surgical Reporter*, April, 1871) :

467. R. Hydrarg. chlor. corrosiv., ℥ss
 Aquæ destill., f. ℥ iij.
 Mix and add :
 Ammonizæ muriatis, ℥j
 Potassii nitratis, ℥ij. M.
 Apply three times a day with a camel's-hair pencil, then discontinue and use the
unguentum hydrargyri.

Other applications which have been commended are :

468. R. Spiritûs ætheris nitrici dulcis, q. s.
 Apply freely to the parts after breaking the vesicles.
469. R. Aluminis, ℥ij-iv
 Aquæ, f. ℥ vj. M,
 Use freely as a lotion.
470. R. Cupri sulphatis, ℥j
 Aquæ, f. ℥ vj. M.
 Use as a lotion.
471. R. Sodii bicarbonatis, q. s.
 Powder thoroughly and rub well the parts, or use it in strong solution. An excellent application.

472. R. Boracis,
Glycerini, 3j.
f. 3j. M.
Apply to the parts.

473. R. Aquæ ammoniæ,
Olei olivæ, f. 3ij
f. 3j. M.
Use locally.

DENNIS (*Med. Brief*, 1890), having observed that the secretions from the surface poisoned with ivy are markedly acrid, made applications of bicarbonate of soda, and found that they gave almost instant relief. Strong solutions mopped over the surface are sufficient.

The editor has obtained more uniformly beneficial results in the relief and cure of rhus poisoning from the application of solutions of carbolic acid (1 : 50) than from any other remedy. The solutions should be applied frequently, by cloths dampened in them. Under the influence of this remedy itching quickly subsides, and the lesions soon disappear. Next to the carbolic acid lotions, hyposulphite of sodium lotions have apparently given the best results.

DR. EDWARD HARTSHORNE, OF PENNSYLVANIA.

474. R. Extracti fluidi serpentariæ, q. s.
To be painted upon the eruption. It appears to kill it at once.

Dr. TYDINGS, of Maryland, has found the following very efficacious. (*Maryland Medical Journal*, December, 1878):

475. R. Extracti belladonnæ alcoholici, 3j.
Aquæ, f. 3ij. M.
Apply to the parts with a brush or feather.

Internal remedies are not very generally exhibited. Prof. L. P. YANDELL, Jr., of Louisville, Ky., states (*Louisville Medical News*, July, 1876,) his opinion that *quinine*, given as it is given for intermittent fever, is infallible in eradicating the malady, and its influence is visible within twenty-four hours. He prescribes:

476. R. Quininæ sulphatis, 3j.
To be divided into twelve pills. Two to four pills daily until the disease fades.

When the leaves of the rhus have been eaten by mistake, a strong infusion of the bark of the root of *sassafras* has relieved; and the *oil of sassafras* may be applied locally. (*Druggists' Circular*, August, 1879.)

Local applications he does not deem essential to the treatment. The best he considers to be corrosive sublimate in two or four-grain solutions.

In Louisiana, according to Dr. W. W. DUNN (*Medical and Surgical Reporter*, March, 1871,) a decoction of the leaves of the cottonwood, *Populus angulata*, is esteemed to be a specific in rhus poisoning. It may be taken internally *ad libitum*.

SCABIES.

Dr. ROBERT TAYLOR, of New York, (*Med News*, 1890,) in a recent clinical lecture advised the following method of treatment. The patient should soak himself thoroughly in a bath at 100° F., in which there has been dissolved one pound of washing soda; and while in the bath he is to rub himself thoroughly with some good soap that makes an abundant lather, as Pears' unscented soap. Having dried the surface, he is to rub in an ointment made as follows:

477. R.	Balsam of Peru, Milk of sulphur, Vaseline,	āā	3j 3j.	M.
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This is to be left on all night; and he should have ready after coming from the bath clean clothing and clean bedding.

There is no necessity for internal treatment; but Dr. TAYLOR advises that alcohol be avoided, as it is apt to aid in causing inflammatory lesions, and that all food liable to cause an erythema should be eschewed.

DE LALLIS, (*Therap. Gaz.*, 1891) advises *creolin* used in the form of a five per cent. ointment, as the best remedy for the cure of scabies. Four daily applications, rubbing the ointment well into the skin, are said to be sufficient to cure an ordinary case.

Naphthol has been commended by WHITE as a parasiticide in the treatment of scabies; and *chrysarobin* has also been suggested.

DR. HENRY G. PIFFARD, NEW YORK.

Put the patient into a warm bath, let him soak half an hour, then have him rubbed all over, except the face, with common soft soap

and a scrubbing brush. Then rinse with clean water, dry, and rub in, with strong friction, the following:

478. R.	Potassii iodidi,	℥j	
	Unguenti sulphuris,	℥j.	M.

Let him go to bed, and the next morning put on clean underclothes. One such application is usually sufficient.

Sometimes the above treatment must be modified for one more mild.

Dr. MCCALL ANDERSON recommends the following as less irritating than ordinary sulphur ointment:

479. R.	Olei cadini,		
	Sulphuris præcipitati,	āā	℥iij
	Glycerini amyli,		℥. ℥vj
	Adipis benzoati,		℥iij.
			M.

UNGUENTUM SULPHURIS CUM ANTHEMIDE.

480. R.	Unguenti anthemidis,	℥vij	
	Sulphuris sublimati,	℥j	
	Potassii carbonatis,	℥ss.	M.

This is a mild ointment for scabies, and well adapted for persons of sensitive skin, and for children.

DR. LOUIS A. DUHRING.

This author states that sulphur, in one form or another, is the remedy which may be relied on in all cases. *Balsam of Peru* may be advantageously combined with it, constituting an excellent preparation for children, as in the following formula:

481. R.	Sulphuris sublimati,		
	Balsami Peruviani,	āā	℥ss
	Adipis,		℥j.
	For an ointment.		M.

In the Philadelphia Hospital Prof. DUHRING frequently ordered the following:

482. R.	Ung. sulphuris,		
	Ung. petrolei,	āā	℥ij.
	Apply twice a day.		M.

In addition, he directed that the patient bathe each day in water as hot as could be borne, and containing four to eight ounces of sodium bicarbonate to each bath.

Styrax is also a valuable remedy, has a pleasant odor, is cleanly, and does not irritate the skin :

483. R.	Styracis liquidi,	f. ʒj	
	Adipis,	ʒ ij.	M.
	Melt and strain.		

A preparation much used at the St. Louis Hospital, Paris, is :

484. R.	Potassii carbonatis,	ʒj	
	Sulphuris sublimati,	ʒ ij	
	Adipis,	ʒ iss.	M.

The patient is well rubbed with soft soap for half an hour ; he is then placed in a warm bath for half an hour ; after which the above ointment is thoroughly rubbed into the skin, and the cure is completed.

Prof. HEBRA'S formula is :

485. R.	Sulphuris sublimati,		
	Olei cadini,	āā	ʒ iij
	Cretæ preparatæ,		ʒ ij
	Saponis viridis,		
	Adipis,	āā	ʒj. M.

Patients are rubbed, morning and evening, for two days, after which nothing is done for a week, when, for the first time, a warm bath is ordered, and the treatment concluded :

DR. ROBERT LIVEING, OF LONDON.

This practitioner says that in the treatment of itch the best plan for proceeding is as follows: Having once ascertained that scabies exists, order one thorough application at night of mild *sulphur ointment* to the whole of the body except the head, and direct the patient to sleep in the drawers, jersey and socks that he has used the day before ; this will secure the death of any stray acari about the body or in his under-clothes. In the morning, he should use a warm bath. The after-treatment should consist of the local inunction of the ointment into those parts only which are especially affected, for two or three nights. In all mild cases, the cure by this plan is quite certain, and is attended with very little inconvenience. The objections to sulphur ointment are its irritating qualities and its smell. The first is avoided by using an ointment made with half a drachm to two scruples of the precipitated sulphur to one ounce of lard. The precipitated is in finer powder, and less gritty than the

sublimed sulphur, and more efficacious. A great part of the inconvenience arising from the smell of the sulphur may be avoided by using it only during the night. A drop or two of *sandal-wood oil* will quite disguise the smell. In cases of long standing it is necessary to have the clothes baked; but a temperature of 190° to 200° Fahr. is quite sufficient, and the bed may be easily fumigated by using a little sulphur sprinkled on the cinders (not too hot) of a warming-pan.

It often happens that the irritation of skin remains after the scabies is cured, and this induces people to go on with the sulphur treatment too long. Instead of doing so, a mild stavesacre ointment should be used, made with the oil of stavesacre and lard; this relieves the itching, and at the same time will kill any stray acari that may have escaped death from the sulphur.

SYCOSIS (MENTAGRA; BARBER'S ITCH.)

DR. LOUIS DUHRING.

In treating this disease, depilation and the use of parasiticides are both demanded. The crusts must be loosened with olive oil, and removed with soap and hot water. The face should be shaved every other day, allowing time between the shaving for the hairs to grow sufficiently to depilate. These measures—shaving and depilation upon alternate days—should be perseveringly practiced until the new hairs show themselves to be healthy.

In the choice of a parasiticide one should be guided by the stage of the disease, its extent, and the general condition of the skin. For the first few days it is well not to employ too stimulating remedies. *Corrosive sublimate*, with water or alcohol, gr. i-ij to the f. ʒj, constitutes an excellent lotion, suitable to any stage of the disease. It may also be employed as an ointment of the same strength. The *yellow sulphide of mercury*, as an ointment, gr. xv-xxx to ʒj, may often be used with the best results. Of the milder yet effective remedies, *sulphate of sodium*, as an ointment, or as a lotion, ʒj to ʒj; *sulphurous acid*, one part to two or four of water, must be considered as among the most valuable.

486. R. Sulphuris,
Ætheris,
Alcoholis,

ʒj
f. ʒiv
q. s. ad f. ʒiv.

M.

Apply twice daily after dilution with double the quantity of water.

Whatever application is selected, it must be applied once or twice daily in such a manner that it penetrates the hair follicles. A lotion should be sopped upon the part for ten or fifteen minutes at each sitting; and an ointment should be slowly and thoroughly rubbed in for the same length of time. Two or more months will, in the majority of cases, be necessary to effect a cure.

DR. ROBERT LIVEING, M. D., LONDON.

This author states that there is but one way of curing sycosis with any certainty, and that is *epilation*. The best plan for doing this is as follows: All crusts must first be removed in the usual way by oil and poultices; the beard must be cut short with a pair of scissors, and wherever a yellow point is seen, the hair should be pulled out with a pair of depilatory forceps. This is quite unattended with pain, for the hair comes out very easily with its sheath attached to it. When this has been done, the compound sulphur ointment of Mr. STARTIN (see under Tinea) must be applied.

For the first day or two the epilation may be confined to the parts most affected, and only those hairs extracted which run through pustules; afterwards, however, the diseased surface should be divided into a certain number of patches, one of which should every day be thoroughly epilated. The healthier the part, the more pain there is in removing the hair; and as the disease lessens, the patience and perseverance of the patient will be taxed to the utmost. The young hairs which appear after epilation should be removed until the skin is quite healthy; and after each removal the sulphur or nitrate of mercury ointment should be well rubbed into the surface, and at night it should be applied on pieces of rag, kept in close contact with the skin.

Perseverance in this plan of treatment invariably cures the disease, whereas, if left to itself, it may last for many years, and lead, in the end, to the complete destruction of the hair, and the formation of permanent cicatrices. The patient should shave for at least six months after the disease has disappeared.

Sycosis sometimes produces small, raspberry-like growths, which must be destroyed by the application of nitrate of silver.

PROF. ROSENTHAL, GERMANY.

As quoted by the *Med. News*, 1891, ROSENTHAL recommends the following treatment for sycosis, stating that there is no pain con-

nected with it, that the cure is relatively rapid, and that it is very easily applied.

The part should be very carefully shaved for three days, night and morning, and then this ointment applied :

487. R.	Tannic acid, Precipitated sulphur, Vaseline,	gr. iij gr. xxx 3v.	M.
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During this treatment care should be taken that no lead application be made, lest the skin be blackened by the sulphide of lead which would result. In some cases the following ointment is very effective :

488. R.	Tannic acid, Precipitated sulphur, Oxide of zinc, Starch, Vaseline,	gr. lxxv 3ijss āā 3iv 3iss.	 M.
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This ointment should be applied night and morning.

The treatment should be completed by epilation.

DR. C. A. SMITH, OF IOWA.

This practitioner deems depilation needless. (*New York Medical Journal*, February, 1876.) He prefers, to all other applications, *dry sulphur*. To avoid any irritation of the skin, we should not even syringe with hot water to remove the crusts, but lift them up with the point of a lancet; precipitated sulphur is then to be applied with a brush, three or four times a day. Later, one or two applications a day will be sufficient. After this treatment is continued two or three weeks, the ulcers will present a clean, red base, and the final healing will go quickly on. It will certainly hasten the cure to remove the loose hairs; but if the hairs be pulled out they are not regenerated; if they be left untouched, a good many will remain, even on places where the ulceration is deep, and in the future help to cover the unsightly cicatrix.

DR. HENRY S. PURDON.

489. R.	Acidi chromici, Aque destillatæ,	3j f. 3j.	M.
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A useful application in sycosis menti and other parasitical skin affections.

DR. VON VEIEL, OF CANSTADT.

This practitioner usually cures barber's itch in four weeks. He cuts the hairs short, removes crusts, and rubs in :

490. R.	Saponis viridis, Picis,	3ss 3j.	M.
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He then removes the hair with the forceps, and applies acetic acid, finishing with sulphur ointment.

DR. JEANNEL, PARIS.

491. R. Hydrargyri chloridi corrosivi, gr. vj
Adipis, 3j.

Dissolve the corrosive sublimate in a little water, and incorporate with the lard. After having removed the crusts of the mentagra by the aid of poultices and warm fomentations, apply, morning and evening, a small quantity of this ointment.

DR. DAUVERGNE, PARIS.

492. R. Ferri sulphatis, gr. iss
Carbonis ligni, 3j.

Reduce to a fine powder, and mix carefully. Cover the affected chin with this powder in the evening.

493. R. Ferri sulphatis, gr. xv-xxx
Aquæ, i. 3ij. M.

To be employed in lotions. But at the commencement, when the affection is acute, recourse must be had to poultices and repeated purgatives. Later on, vapor douches every other day to the affected part are productive of benefit.

PROF. BROOKE, ENGLAND.

This authority believes (*Edinburgh Med. Jour.*, 1890; *Med. News*, 1890) that all forms of sycosis are contagious, and that there is no non-contagious sycosis. The disease is always met in those frequenting the lower class barber shops. Three or four days after shaving a patch of inflammation appears, followed by the formation of small points of pus, usually on the lower lip. The treatment recommended by BROOKE is, if there be much inflammation or eczema, the application of a lukewarm poultice of an antiseptic starch paste, to be changed three times daily. The starch paste is made from

494. R. Starch powder, 3j
Boric acid, gr. xxx. M.

Use in making paste.

This helps to soothe the inflammatory condition, and to clean the skin of crusts and pus. As soon as possible, shaving and epilation must be performed. The ointment he finds best suited and most effectual in these cases is:

495. R. Oleate of mercury, 3j
Ichthyol, ℥xx
Salicylic acid, gr. x
Oil of lavender, gtt. ij. M.

This should be kept on by lint or linen bandages. The hair should be kept short, as half-grown beards more than anything else seem to cause increased irritation.

TINEA, RINGWORM.

DR. L. DUNCAN BULKLEY.

In *tinea circinata* this practitioner has derived excellent results from the nitrate of mercury:

496. R.	Unguenti hydrargyri nitratis,	3ij	
	Unguenti aquæ rosæ,	3vj.	M.
To be well rubbed in, morning and night.			

He has also used with success an ointment of the *liquor picis alkalinus* (see p. 315) f. 5j-ij to 5j.

In *tinea tonsurans*, considerable reputation has been gained by

COSTER'S PASTE.

497. R.	Iodinii.	3ij	
	Olei picis decolorati,	f. 3j.	M.

It was first introduced by Dr. COSTER, of Hanwell Central London Schools. This preparation is painted on the affected parts with a firm brush. It forms a cake, which separates at the end of a week or fortnight. It may require to be repeated once or twice, but often more frequently. It causes little or no pain; is not liable to cause abscesses or destruction of the hair follicles, such as often result from deep blistering. The oil of tar is obtained by distillation from the common tar, and has a specific gravity of .835. It is the light oil of wood-tar. It is colorless when quite fresh, but changes to a sherry color with keeping. It has a specific gravity of .853 to .867. It is known in commerce as rectified spirit of tar, and in some districts is largely used as a sheep-dressing by farmers.

DR. LOUIS A. DUHRING.

In *tinea circinata*, especially in children, mild applications are usually sufficient to effect a cure. An ointment of ammoniated mercury, gr. x-xx to 5j, will very often suffice; or ointment of nitrate of mercury, 5j to 5j. Acetic acid, tincture of iodine, cantharidal

collodion and sulphurous acid, are all serviceable. Care should be taken that the applications be mild and the skin be not irritated. The ointments should be applied in small quantity, and well rubbed into the affected part once or twice daily.

In *tinca tonsurans* depilation should be practiced, a portion of the hairs being extracted each day until the surface has been well cleared, and parasiticides applied. A preparation much used in London is the following :

498. R.	Iodinii,	℥ij	
	Olei picis,	f. ℥j.	M.
To be gradually and slowly mixed.			

A small quantity of this mixture should be painted on the patches with a brush, and allowed to remain on until the crust is cast off, in the course of five or six days, when it may be re-applied. A few applications generally suffice. The late Mr. STARTIN, of London, esteemed the following :

499. R.	Sulphuris sublimati,	gr. xxx	
	Hydrargyri ammoniati,		
	Hydrargyri sulphureti nigri,	āā gr. x	
Mix, and add :			
	Olei olivæ,	f. ℥ij	
	Creosoti,	gtt. iv	
	Adipis,	℥vj.	M.
For an ointment.			

Painting the patches with glacial acetic acid or with cantharidal collodion once a week or oftener, and making use of one of the milder parasiticides in the meantime, is also a good method of treatment.

DR. TILBURY FOX, LONDON.

500. R.	Acidi carbolicæ,	℥ij	
	Glycerini,	f. ℥j	
	Aquæ rosæ,	ad f. ℥ viij.	M.
Use in <i>ring-worm</i> , of the surface especially.			

In *tinca tonsurans* the hair should be cut short; the crusts must be removed by soaking with :

501. R.	Sodii hyposulphitis,	℥iv	
	Glycerini,	f. ℥ij	
	Aquæ,	ad f. ℥vj.	M.

Or, if preferred, with :

502. R. Sodii hyposulphitis,
Acidi sulphurosi diluti,
Aque,

℥ iij
f. ℥ ss
q. s. ad Oj.

M.

When the scalp is cleansed, the hairs must be extracted one by one, and parasiticides applied at once.

Our author prefers for this purpose :

503. R. Sodii biboratis,
Hydrargyri chloridi corrosivi,
Aque,

℥ j
gr. x-xx
f. ℥ ij-ijj.

M.

A certain portion of the surface should be cleared each day, and the whole head meanwhile kept moistened with sulphurous acid lotion.

This author adds that whenever a child is brought to the practitioner for his advice on account of the presence of what seem to be scurfy-looking places on the head, if these are small, and the general surface of the scalp is healthy, they are to be inspected for ringworm.

A careful search should be made for broken-off hairs, and these or the scales, and any attached hairs, should be submitted for microscopic examination for fungous elements in them. In cases of chronic ringworm, all merely scurfy patches should be carefully examined, for a solitary piece of dead hair lodged in the follicle may explain the mischief, as it is generally loaded with fungous elements, which are readily sown broad-cast to re-light up the old mischief if parasiticide treatment is abandoned. Such ill-cured cases of ringworm, as before observed, may be the source of infection to many a child in public institutions and schools.

Dr. DYCE DUCKWORTH has suggested a simple and valuable means of recognizing true ringworm of the scalp. A few drops of chloroform are to be poured upon the head of the patient, who must be placed in a good light between the operator and the window. On evaporation of the chloroform, the hairs affected by ringworm are seen to become of a yellowish-white color, opaque, and like fine filaments of a vegetable lichen. This change is observable not only upon the hairs, but also on the skin in the immediate neighborhood. Small whitish masses are seen upon the scalp, and especially at the point of emergence of the hairs. The healthy hairs are quite uninfluenced.

Goa powder and *chrysophanic acid*, prepared from it, have been highly extolled in true ringworm by BALMANNO SQUIRE and others. Some cases were treated by painting on the patches a saturated solu-

tion of chrysophanic acid in benzole, which retains ten grains to the ounce in the cold. Cases of *tinea circinata* were cured by this in about a half a dozen applications. Other cases were treated with an ointment consisting of chrysophanic acid gr. xx, acetic acid ℥xx, simple ointment ʒj, according to the formula of Dr. LIMA. Chrysophanic acid has, however, proved too irritating for general use.

ALDER SMITH, M. B., LONDON.

In a monograph on *ringworm* (1881) this author says that in recent cases it is absolutely necessary to shave the hair. He then blisters the spots and dresses with *carbolic glycerine*, from equal parts to two or even six parts of glycerine to one of carbolic acid, beginning with the weaker mixture. Where a large extent of surface is involved, he prefers the following ointment:

504. R. Acid. carbol. pur.,
 Ung. hydrarg. nit.,
 Ung. sulphuris, partes equales. M.

It is important to make up this ointment *without heat*, rubbing the citrine and sulphur ointments together, and then adding the carbolic acid. It should be made fresh every week. A cap should be worn. In chronic cases, *oleate of mercury* is preferable as an application.

URTICARIA.

WILLIAM AITKEN, M. D., EDINBURGH.

In the treatment of nettle-rash, emetics and purgatives are to be employed in the first instance; afterward, faulty digestion is to be corrected. The surface of the eruption may be dusted with flour, or the following lotion may be used:

505. R. Ammonii carbonatis, ʒj
 Plumbi acetatis, ʒij
 Aquæ rosæ, f. ʒ viij. M.

ERASMUS WILSON, F. R. S., ETC., LONDON.

In *chronic* urticaria, the deranged functions are to be restored. The administration of the mineral acids with a bitter is serviceable. Very chronic cases require arsenic. The following may be used:

506. R. Liquoris arsenici chloridi, f. ℥ ss
 Acidi muriatici diluti,
 Aquæ aurantii florum, āā f. ℥ ij
 Syrupi simplicis, f. ℥ iij. M.

A tablespoonful to be taken alone or in water, *with the meals*, three times a day.

The local treatment consists in the use of remedies for the purpose of relieving the itching, tingling, and smarting. For this purpose employ sponging with hot water, ablution with the juniper-tar or carbolic acid soap, and frictions with

UNGUENTUM PICIS JUNIPERI.

507. R. Olei juniperi pyrolignici, f. ℥ j
 Adipis purificati, ℥ ij
 Sevi ovilli purificati, ℥ vj. M.
- Melt with gentle heat and make an ointment.

This is an elegant preparation. It may be used of the above strength or diluted. Or the

LOTIO HYDRARGYRI BICHLORIDI.

508. R. Amygdalarum amararum, No. xx
 Aquæ destillatæ, f. ℥ vj
- Contuse and mix together, then strain and add:
- Hydrargyri chloridi corrosivi, gr. xvj
 Spiritûs vini rectificati, f. ℥ ij. M.

Or the

LOTIO ACIDI CARBOLICI.

509. R. Acidi carbolici fluidi, f. ℥ ss-j
 Glycerini, f. ℥ ss
 Aquæ destillatæ, f. ℥ vijss. M.

Or sponging with hot vinegar, with a lotion of carbonate of ammonium, a lotion of aconite, and liniments of opodeldoc and chloroform or laudanum. When one application fails, the other must be tried. The tepid bath affords almost instantaneous relief.

QUINQUAUD, of Paris, recommends (*Med. News*, 1891,) the following in urticaria. Internally he prescribes alkalies, arsenite of sodium and naphthol, and when itching becomes intolerable he applies the following lotion:

510. R. Boric acid, ℥ iss
 Chloral, ℥ j
 Water, f. ℥ vj. M.

The following powder is also of value:

- | | | | |
|---------|---|---|----|
| 511. R. | Powdered starch,
Oxide of zinc,
Salicylic acid, | $\overline{3}$ iss
$\overline{3}$ iij
$\overline{3}$ j. | M. |
|---------|---|---|----|

HARDY, of Paris, recommends:

- | | | | |
|---------|---|---|----|
| 512. R. | Bichloride of mercury,
Ammonium muriate,
Milk of almonds, | gr. iij
gr. iv
f. $\overline{3}$ xij. | M. |
|---------|---|---|----|

Or:

- | | | | |
|---------|--|--|----|
| 513. R. | Chloral.
Sulphur,
Distilled water,
Glycerine,
Milk of almonds, | gr. xv
$\overline{3}$ j

$\overline{a}\overline{a}$ f. $\overline{3}$ j
f. $\overline{3}$ x. | M. |
|---------|--|--|----|

X. RESPIRATORY SYSTEM (INCLUDING WOUNDS OF NECK AND CHEST).

*Asphyxia (Inhalation of Noxious Gases—Choking—Drowning)—
Empyema—Wounds of the Chest—Injuries of the Neck.*

ASPHYXIA.

a.—FROM INHALATION OF NOXIOUS GASES.

The most common cause of distress and often of death under this class arises from the inhalation of gases from combustion, coming from imperfectly arranged heating apparatus into badly ventilated dwelling apartments, or from the inhalation of illuminating gas escaping by accident, or through carelessness or purpose, into close rooms. These gases are prominently composed of carbonic acid gas, carbon monoxide and acetylene. The second of these is that which is sometimes the cause of death to persons sleeping over lime-kilns and similar places, a number of such fatal results being published annually as occurring among the vagabond population, members of which, "tramps," are tempted by the warmth arising from the kilns to make their beds in such places. In extreme cases of crowding in small, ill-ventilated enclosures, serious results may happen by the continued reinhalation of air vitiated by the carbonic acid gas exhaled by the numerous occupants of the apartment. So, too, in old, unused wells, in caverns in low places, in badly ventilated mine shafts, and in old sewers, carbonic acid gas is apt, by reason of its weight, to collect sometimes in an almost pure condition. Inhalation, under such circumstances, is rapidly productive of a fatal issue, the person breathing it falling at once to the ground. The gas causes a spasm of the glottis, and death results from apnoea, none of the gas thereafter reaching the lungs. Where it is more diluted, it causes immediate muscular relaxation, the subject falling and utterly unable to escape from his peril or even to call aloud. Where it is still more diluted, but yet in irrespirable proportions, it causes first a feeling of tightness, fullness in the throat, a heavy dull feeling in the head, gradual loss of muscular power, rapid, weak cardiac action, quick

breathing, and sometimes convulsions, vomiting and coma. Carbon monoxide poisoning is usually a gradual poisoning, the gas generally collecting gradually in the room or being inhaled more and more by the person exposed to it in such a place as over a lime-kiln. This is the "water gas" spoken of in connection with the illuminating gas as manufactured by the "water process." There is little or no odor to it alone, although in illuminating gas there are other gaseous substances possessing odor, which should be noticeable to one entering a room charged with it. As a rule, the exposure to the gas occurs as the subject sleeps, and the sleep is prolonged to coma or death. The gas forms a stable compound with the hæmoglobin of the blood, and renders the latter substance unable to carry oxygen through the body. The spasm of the glottis, as noted in case of carbon binoxide, does not occur, and the asphyxia is not one from prevention of the action of the upper air passages and lungs, so much as through the destruction of the blood respiratory function. The lividity of the face, rapid, weak pulse, quick, shallow respiration, depression of temperature, drowsiness or coma, and tendency to convulsions and vomiting, are quite as pronounced in poisoning from the carbon monoxide as from the dilute carbonic acid gas. The carbon monoxide gas is met in poisoning from coal gas, and has been in France a rather popular means of committing suicide, the individual shutting himself in a close room with a burning brazier of charcoal.

DR. J. C. DA COSTA, OF PHILADELPHIA.

Dr. DA COSTA, in a clinical lecture (*Med. News*, 1892,) held recently over a group of six cases of coal-gas asphyxia, outlined the treatment pursued in the following manner: "It consisted in a plentiful supply of fresh air; in oxygen inhalations to the bad cases; in digitalis, given hypodermatically, to sustain the action of the weak heart; and in stimulating expectorants, especially the syrup of senega, to which late in the case, in a few instances, ammonia was added. The diet consisted of milk." None were freely stimulated but the single fatal case, but all had small amounts of stimulant from time to time when they seemed very weak. Due attention was paid to the condition of the bowels by the administration of salines.

Five of these six cases recovered, two of them being mild, the patients never having become quite comatose. A prominent symptom as consciousness became complete in these five cases was the bronchial cough, for which the expectorant referred to was given

and continued as long as the symptom was of moment. Ammonia was not given early in the case, lest it being absorbed should add to the unpleasant symptoms due to the coal-gas. All of the cases were placed upon quinine or some preparation of bark; where the tongue became foul, fifteen drops of dilute muriatic acid in two fluid drachms of infusion of cinchona were given three times daily. Dr. DA COSTA cautions that often there are remote effects from poisoning by coal-gas, which may demand very careful and urgent treatment. The most common of these, perhaps, is the anæmia.

In a case of asphyxia from illuminating gas (in which probably the most important element was the carbon-monoxide), HOFFMAN (*Med. News*, 1891,) succeeded in relieving the symptoms by the subcutaneous administration of nitroglycerine in doses of one one-hundredth of a grain. The injection was made in the præcordial region, and was followed by prompt results.

In several instances of coal-gas asphyxia occurring in the practice of the editor, rapid recovery from the immediate effects of the gas was obtained by placing the patients in the open air and the stimulation of the circulation by digitalis and small doses of alcohol. The administration of sedative and stimulant expectorants for the bronchial disturbances, and of iron for the anæmia appearing later, completed the care of each case, combined with the employment of nutritious and easily assimilable diet. In these cases, inasmuch as the real cause of the asphyxia is in the alteration of the blood-cells, little importance is to be attached to the prolonged use of artificial respiration, although it should be practised at first if there be apparent reason. Transfusion of blood would be justifiable and indicated in severe cases, although as a *dernier ressort* it is apt to be of little real use.

In the *asphyxia from inhalation of strong carbonic oxide (carbon dioxide)* a condition more nearly like ordinary choking is induced. It is met among miners, well-diggers and persons who have occasion to go into low places where this gas accumulates. It is a valuable precaution to be taken where such work is to be performed, to first lower into the pit to be explored a lighted candle, which will be extinguished if the gas is present in large proportions. Where an accident has occurred and it is necessary to have some one enter the poisoned atmosphere to rescue one who has been overpowered, the use of an air-tube, if quickly obtainable, should be insisted upon, such a tube being easily held in the mouth of the rescuer by an or-

dinary bit of twine or by his hands. Where such an apparatus cannot be obtained or improvised, the rescuer should at least take the precaution to tie a rope about his person, so that if overpowered he may be withdrawn by the by-standers, and then taking a full breath of fresh air, make a quick descent and return without inhalation. The rescue having been performed, the immediate practice of artificial respiration (p. 27) should be instituted. Dashing cold and hot water over the chest alternately and stimulation of the respiratory muscles by electricity may be tried.

Dr. GEORGE JOHNSON (*Brit. Med. Jour.*, 1891), from a series of experiments upon the lower animals, concludes that the immediate cause of death in asphyxia is the arrest of the pulmonary circulation. This author refers to the use of such remedies as nitrite of amyl, atropine, etc., as tending to overcome this condition. Venesection would also be a procedure indicated in individual cases.

The asphyxia from inhalation of anæsthetics has already been considered, and the reader is referred to the article upon emergencies of anæsthetization for its discussion.

b.—CHOKING.

Patients choking from the occlusion of the laryngeal orifice by some large body, too bulky to enter either the larynx or the œsophagus, as not infrequently happens with children or among the chronic insane, may often be relieved by some such simple method as bodily inversion. If the patient is too heavy for such a procedure he may be thrown over a bed or bench, the head hanging low, and by forcible pressure on the thorax, or by pounding on the back, caused to make sufficient expiratory effort to dislodge the foreign body. If this is impracticable, or if, in the first place, there be a good long-shanked forceps about, the mouth should be opened, and if necessary, held open by a gag or small stick, and the foreign mass be withdrawn with the instrument. If the foreign mass be small and have already entered the larynx, inversion of the body, with pounding on the back to cause forcible expiration, will often suffice to dislodge it; otherwise, a properly curved laryngeal forceps must be inserted, the actions of the surgeon being guided by the laryngoscope, and the body grasped and withdrawn. Where this is impossible and the danger imminent, laryngotomy or tracheotomy is indicated. As to the after-effects, the body being removed, these must be met with efforts to restore respiratory efforts. Artificial

respiration (p. 27) must be at once instituted, cardiac stimulants, as nitroglycerine, administered (gtt. j-v of a one per cent. solution) hypodermically, and any special symptoms met as they arise.

Choking from the lodging of substances in the œsophagus causing pressure on the trachea, may be recognized by the fact that they were actually swallowed, not simply inhaled, the sensations and recollection of the patient being usually clear upon this point. An œsophageal bougie may be the means of forcing the body down into the stomach, or if it be small, the apparatus known as a parasol snare, a hollow bougie arranged so that on retraction the end in the œsophagus broadenes out into a sort of brush, may be employed to withdraw the foreign substance, such as a coin or button.

Where the asphyxia arises from strangulation (by hanging, etc.), much the same procedures as will be described under drowning should be enforced, except that perhaps the head and shoulders may be raised somewhat higher. The quantity of blood in the head caused by the compression of the veins in the neck, may require abstraction of blood, which had possibly best be performed from the jugular. Of course, the amount to be removed should not be large, lest the vital powers be affected—only until the livid and congested appearance of the face is improved.

c.—DROWNING.

The body having been recovered, measures must be at once and without confusion taken for the resuscitation. The mouth and nostrils should be wiped out and freed from all dirt and mud which are apt to enter from the futile efforts of the drowning one after sinking. The wet clothes should be at once removed and the body wiped hurriedly and wrapped in dry and warm blankets, or whatever dry clothes are at hand, in order to prevent a cold. The colder the weather the more necessary are these measures, and the more necessary is promptness in their fulfillment. In carrying the body it should be placed in a recumbent position on a board, or shutter, or in a cart, and taken at once to the room prepared for its reception, providing the resuscitation cannot be attempted upon the spot. The first point to be endeavored, and which may be begun as quickly as the mouth and nostrils have been cleaned, is the elevation of the body or its inversion, so that the water which has entered the larynx and trachea may drain out. It is often recommended among the laity that the patient be laid, abdomen down, over a barrel, and

the latter rolled slightly to and fro so as to dislodge the water. Such rough method is without advantage, and does not succeed any better than more gentle and carefully applied measures. The patient lying upon his abdomen, with head and chest depressed, regular and evenly applied pressure at intervals on the chest to imitate expiration should be at once made, with the double effort to cause the expulsion of water from the respiratory passages, and to carry out some inceptive attempt at artificial respiration. The attempt at removal of water being fruitless, or if fruitful, having ended, the body should be placed in a more natural position, the shoulders and head being slightly—but not much—elevated, and full effort at artificial respiration (p. 27) be made. Or the lungs may be inflated by means of a bellows, or from the lungs of the operator. If a small bellows is available it had best be used, the superiority of fresh unbreathed air over that which is already charged with the refuse of one system being ample to compensate for the disadvantage of its being cold. The patient's mouth being held closed, and the larynx pressed back toward the vertebræ by one hand of the assistant, in order to close the œsophagus and at the same time to open the upper laryngeal orifice as much as possible, the pipe of the bellows is inserted into the one nostril and the nose held shut and close about this pipe by the other hand of the assistant, while the operator pumps in the air. The pumping is stopped at proper intervals, approximately those of ordinary respiration, the nostril which has been held closed is released, and the lungs made to collapse by pressure on the chest. These actions should be continued at the rate of 15 or thereabouts in a minute, and for a long time if necessary. If a bellows is not at hand, the operator should inflate from his own lungs, applying his mouth to that of the patient and holding the nostrils closed with one hand, with the other pressing the larynx gently back against the œsophagus. Of the methods referred to, probably carefully practised and persistent artificial respiration is preferable to the inflation method just given, but in many cases circumstances will determine in favor of the latter. The danger of over-inflation is by no means small, and in recent times the movements of the arm and chest in performing artificial respiration have come to the more favorable opinion of the profession in the average cases.

Gentle friction of the surface with the hand, or better with warm cloths, should be practised at the same time that efforts to restore

respiration are being employed, with a view of warming the patient's body and of inducing the circulation of the blood. Stimulants to the respiration have been recommended, as the irritation of the muscles of the chest by twitching cloths wet with hot and cold water upon them, the use of electricity, tickling and irritation about the nostrils; these are all of some avail, and where the case is urgent and the means available, should be tried in conjunction with the more important measures. A feather dipped in ammonia water is recommended to be touched to the nostrils for the last named purpose. Warm applications, hot-water bags or bottles, should be applied to the feet and ankles, about the wrists and over the abdominal surface; or if possible a hot bath may be given, with a view of restoring the body temperature. It has been recommended that by the stomach-tube hot stimulating drinks should be given, although this measure is of doubtful propriety. Such procedures as the use of emetics, of tobacco clysters, etc., should not be employed, and are at present condemned.

The efforts as outlined should be persisted in if necessary for hours; and should not be entirely forsaken even after signs of returning life have become evident. At least the patient should not be left until reaction is complete, lest there occur occasion for further assistance. It may be the case, too, that in the reaction convulsive, delirious, maniacal, inflammatory or febrile conditions may become manifest, and the attending physician should be upon guard for any such occurrence.

EMPYEMA.

DR. A. M. PHELPS, OF NEW YORK.

Prof. PHELPS, in a paper recently read before the New York Post-graduate Clinical Society (*Internat. Clinics*, 1892,) details his method of dealing with cases of pyothorax by means of valvular drainage. The fundamental principle upon which this method is based is the obliteration, as far as possible, of the purulent pleural sac, by the approximation and possible union of the pleural surfaces. The first step in carrying out the treatment is the withdrawal of the pus, followed by washing out and sterilizing the cavity, and finally the drainage and emptying of the cavity of air. Where the collection of pus

is not large, Dr. PHELPS advises its removal by aspiration. If the pus is fetid, after the cavity is empty, it may be washed out with Condy's fluid, or with :

514. R. Salicylic acid,
Alcohol,
Water,

$\frac{3}{4}$ ss
f. $\frac{3}{4}$ iv
f. $\frac{3}{4}$ xxviii. M.

He does not employ repeated aspirations except in cases of children, but prefers the establishment of constant drainage, and even in children a small drainage-tube is the better treatment, even where the reaccumulation of the pus is not rapid. The point at which the writer prefers to open the thoracic cavity is at its lowest part, between the ninth and tenth ribs on a line drawn perpendicularly from the angle of the scapula, when the arm is held up over the head.

Having made an opening at this position either with a trocar, aspiration needle, or of sufficient size by means of a knife for the insertion of a drainage apparatus, the next matter is the washing of the cavity. This can be done by making a counter-puncture between the sixth and seventh ribs in front, externally to the nipple. Into this opening a rubber tube may be introduced, and fastened by a bit of adhesive plaster to the chest-wall. A funnel and larger rubber tube may be attached to this at will, and water poured in, which naturally passes along the incline of the diaphragm to the place of exit first made. It is, however, not really necessary in the vast majority of cases to make this anterior opening, as the cleansing fluid can usually with the exercise of a little care be introduced through the first-mentioned openings; and if the sac is multilocular a long delicate catheter introduced into the cavity to the anterior part of the chest (through the drainage-tube) will usually suffice. Rarely does it become necessary to resect a rib in order to accomplish this purpose. Finally when the cavity has been washed out well, Dr. PHELPS applies to the drainage-tube already inserted a valvular apparatus, or may insert a fresh one, the valvular arrangement so fixed that on inspiration, when the lung which has become partially collapsed expands, the valve opens outwards and the air in the pleural cavity escapes. On expiration, when the lung is compressed by the chest-walls there may be more air expelled, but none allowed to enter. Thus the pneumothorax is gradually corrected, the lung within the cavity inflated more and more upon inspiration as the air becomes more rarefied in the sac; and the two pleural membranes are approximated, often to such an extent as to obliterate

ate the cavity. Adhesions are desired, and often form, leaving no room for the formation of a body of pus even were it not constantly drained away.

The apparatus used by Dr. PHELPS is exceedingly simple in its manufacture. A tracheotomy tube, or the upper part of a canula, is used, long enough to project a half or an inch within the cavity, protected externally by the flange usually found on the canula or tracheotomy tube to prevent its slipping into the wound; over the external orifice is fastened a bit of rubber dam in such a way that it acts as an outward-moving valve.

Dr. MARY PUTNAM JACOBI (*Med. News*, 1890,) in an article upon empyema commends this idea of Dr. PHELPS, which was first broached by the latter in 1880, and states that in a case of her own much the same effect was gained by having a piece of rubber tissue, the size of the palm, directly over the opening and beneath the dressings. She mentions several other practitioners who have spoken favorably of the principle, and who have successfully employed it in a more or less modified form. Dr. WILLIAM WILLIAMS (*Brit. Med. Jour.*, 1889,) also reports three cases in which the use of a valvular drainage tube was followed by the most favorable results.

As to the proper mode of opening the chest, whether by aspirating needle, by an ordinary trocar and canula, by free incision, perhaps with resection of ribs, there is much discussion. It is the general sense that repeated aspiration should not be performed, as being a practically useless procedure in most cases. The more radical operations are held reprehensible by some as being unnecessary, and as often killing by shock and by producing undue symptoms from the rapid withdrawal of the pus. Probably the small opening with a trocar, of sufficient size to permit the entrance of the valvular drain suggested by Dr. PHELPS, occupies the middle ground of regard. In children the opening should be small, an aspirator being first employed, but if the temperature continues to mark the presence of pus, a larger opening must be at once made.

During the period of the development of the empyema, of course the most studied care is to be taken to avert it, the patient endeavoring by nourishment, protection, and by internal medication, to prevent the formation of pus in the pleural sac. So, too, after operation, the diet should be most liberal in the easily digested and highly nutritious substances; abundance of fresh air and moderate exercise should be obtained, but the greatest care exercised that no cold be

taken. Finally, the internal administration of iron, quinine, strychnia, with cod-liver oil and whisky, should form a very important portion of the medical measures.

WOUNDS OF THE CHEST.

UNITED STATES ARMY.*

Local Treatment.—To secure *rest*, position and the broad chest bandage are the most generally applicable measures in injuries of the thorax. In profuse primary hemorrhages, cold applications to the chest, as ice-water, etc., are useful. If the bleeding point can be discovered, it is better to arrest it by uncovering the artery and ligaturing it. When it is impossible to reach the source of the bleeding, it is better to close the wound, and promote the occlusion of the bleeding vessel by compression and general means. All superficial wounds should be closed with a view of promoting early adhesions. In extensive incisions and lacerations, it will be well to use sutures or *serre-fines*; but in coughing and inadvertent motions of the patients, they often tear out, and usually a simple dressing with adhesive strips, covered with lint or oakum, and a light bandage, will suffice. In many cases of penetrating wound, surgeons have used with advantage, to support the injured side, broad strips of adhesive plaster made to encompass two-thirds of the chest, and fenestrated at the wound.

General Treatment.—The use of *venesection* in these wounds, though traditional and still recommended by various authorities, must be abandoned. Recent and extensive experience condemns it as always unnecessary and occasionally very harmful. On the other hand, *opium* is a most important pharmaceutic means. Dr. NEUDÖRFER justly remarks: "In cases of injuries of the chest, as well as of the abdomen, opium is to be considered as possessing specific powers, not to be replaced by any narcotic whatever." The practitioner should not forget that its effects upon the system are augmented after profuse loss of blood, and therefore he must be guarded in its administration under such circumstances. A frequent practice was to dust the salts of morphia on the surface of wounds, and it is

* *Medical and Surgical History of the War of the Rebellion.*

reported that this method has the additional advantage of allaying promptly the local pains, as well as the general nervousness and trepidation which are so marked features of chest wounds.

Calomel, which has often been employed for its supposed control over the inflammatory process, especially in traumatic pleuritis and pneumonia, has steadily declined in favor of late years in these injuries, and probably should be discarded altogether. At most, the mercurial preparations may be called for to combat the tendency to exudations in carditis, and to promote the absorption of serous effusions in the pleural cavity. It is of importance to maintain the blood in such a condition as to favor its coagulability, on which the natural reparative process depends. As depressants of the circulation, and to control traumatic pneumonia, use has been made of *antimonials*, *veratrum viride*, *aconite* and *digitalis*; but the general result credits none of these drugs with special importance in the treatment of these injuries. The cautious use of ammonia and brandy is requisite in cases attended with great prostration from the outset. In the latter stages, alcoholic stimulants and carbonate of ammonia, in conjunction with concentrated nutriment, are important adjuncts to the restorative treatment. In cases of traumatic pneumonia, large *blisters* are often employed, even in the early stages. It must not be forgotten, however, that they often produce much suffering, interfere with auscultation and percussion, and sometimes are followed by gangrene.

All these means are subsidiary to opium, the operative treatment, the rigid enforcement of rest, the regulation of the air and of the *dict*. The latter should be severely restricted at first, and though later nutritious food should be allowed, it should long be of liquid form and easy of assimilation. The error is often made of allowing solid animal food at too early a period.

Besides operative measures, with the exception of the application of the principles of antiseptic surgery to the dressings of wounds of the chest, there is little to be added to the above. English and Continental writers continue to advise in wounds penetrating the lungs, venesection; in America it is probable recourse will never be extensively made to this practice, the use of such agents as *veratrum viride*, opium and *digitalis* having acquired too firm a ground.

DR. DAVID W. CHEEVER, BOSTON.*

This surgeon writes that in penetrating gun-shot wounds of the chest, three methods of treatment are open to us:

First. To seal up the wound, a mode recommended in 1863 by Dr. BENJAMIN HOWARD, U. S. A. It consists in paring the edges of the wound, if uneven, then drying it, and placing upon it a few shreds of charpie arranged cross-wise; a few drops of collodion are poured on these, so as to saturate them and form a sort of collodion cloth; when dried, additional coats of collodion are painted on, until the wound is hermetically sealed. This mode, according to Dr. CHEEVER, "has now scarcely a single advocate."†

Second. To pursue a strictly expectant course, and not tap or open more freely the pleura, until pneumo-thorax, hemorrhage or effusion calls for interference.

Third. To lay open the tract of the wound, and make at once a free and permanent pleural opening. Dr. CHEEVER gives a case where a rib was broken by the entrance of a piece of iron, and the pleural cavity was penetrated. The wound was freely slit up, the pleural cavity more widely opened, and a small fragment of splintered rib extracted. The wound was left open. A large effusion of serum began to be discharged from the wound. A moderate pneumonia set in, and the discharge became puriform. The wound of the chest-wall was kept sedulously open with tents, and the pleural cavity syringed out daily with disinfectants, through a long, elastic catheter. Adhesions of the lung to the thorax took place, the cavity lessened, and finally the wound closed and the patient convalesced. Pleurisy, pneumonia, empyema and adhesion went through their stages with an open wound, instead of in a closed cavity.

One year later this patient again presented himself at the hospital. Respiration was nearly perfect on the injured side. He was strong and active, and, what was most interesting, the side of the thorax had not collapsed and shrunk as it does in chronic pleurisy, after the effusion is absorbed. During the course of the diseased processes, atmospheric pressure had been equal both inside and outside the thorax.

The lung did not collapse when the pleural cavity was freely opened. This opening was about opposite the lower third of the

* *Medical and Surgical Reports of the Boston City Hospital, 1877.*

† It will be found very fully discussed in the *Medical and Surgical History of the War of the Rebellion*, Surgical Vol. I., p. 497, *et seq.* The verdict is against it.

axilla. Dr. A. H. SMITH's experiments prove that collapse of the lung does not take place if an opening is made in the side of the thorax opposite the middle of a lobe, but only when the opening is near the free edge of the lobe. In the living animal the lung never collapsed entirely when only *one side* was opened. It will be noted that in this case the lung tissue was not implicated.

INJURIES OF THE NECK.

The well known and well understood danger of injuries to this part of the body depends upon the importance of the anatomical structures found here within a comparatively small compass—the entrance to the respiratory and digestive systems, large blood vessels capable of infinite damage, and the spinal cord in perhaps its most exposed part, besides the important nerves which pass through this portion of the body. Wounds of the neck are to be regarded dangerous, first, from hemorrhage, second, from injury to the respiratory system, and finally, from nervous injury.

In wounds of any consequence in this part of the body the minor measures for arrest of hemorrhage need not be considered at all. Immediate seizure of the bleeding vessel in the wound, or its exposure and ligation away from the wound, above and below the seat of injury (at two points particularly in case of a vein), alone can serve to stop the flow of blood. If the vessel be superficial, pressure may be of service temporarily, but if the vessel is of any degree of size it should be ligated early. The position of the patient should of course be taken into consideration in the emergency, the shoulders being elevated as much as compatible with the condition of the patient, and the head held in such a position as to prevent gaping of the wounded vessel. Where the wound does not implicate the more important vessels of the neck, but merely opens the air passage, there need be no serious alarm as to the immediate result. It is best in these cases to bring the severed cartilages in apposition by a few stitches into the perichondrium, or if the rings of the trachea have been merely separated, to take sufficient stitches to bring them into proper position and close the intra-tracheal opening. In this manner the danger of emphysema of the neck is largely averted. The question of position of the head here enters largely into the

details of dressing, and it may become necessary to fix it in a slightly lowered position in order to keep the edges of the wound well in approximation. The possibility of serious œdema of the larynx from injury to the neck must constantly be kept in view, and the necessity for tracheotomy remembered. Intubation of the larynx in such cases, especially where there is œdema without an opening into the larynx or trachea, is to be preferred in the majority of cases, providing the obstruction be not too low in the neck for the intubation tubes to be of value. Where from a wound of the air passages emphysema of the tissues of the neck and upper thorax becomes marked, it should be dispersed as much as possible by friction toward the wound, and by the application of slight, even pressure.

Where the injury to the neck involves the integrity of the cord, little service can be performed. In cases of hanging, the operation is usually performed so that death occurs not from the strangulation, but by breaking the spinal column, or at least rupturing the cord. In cases of suicide from hanging, very often the "drop" is slight or nothing at all, and death comes by occlusion of the air passages. In such cases if the patient be cut down early, the ordinary methods of reëstablishing respiration should be performed, and may be successful. In the after treatment of these cases during the period of reaction, especial care must be had to prevent the inflammatory symptoms in the neck and sometimes in the larynx from becoming severe, lest dangerous swelling occur and render the case again serious. The application of leeches, of cold, the use of mercurials, etc., should all be employed in order to avert the complication.

Occasionally it happens that from a blow upon the head or neck, the latter may be broken without death at once ensuing. Usually from pressure or injury to the cord there is complete paralysis of the body. The patient should be at once placed upon a water-bed and the utmost care taken of all the bodily functions and parts. The head should be placed in an easy, comfortable position, drawing it up so as to replace the fractured vertebræ as much as possible. By means of a head apparatus such as is used on the various extension appliances, and a weight suspended over the head of the bed upon a pulley, proper extension may be maintained. In spite of all efforts as a rule death soon follows, but occasionally favorable results may be attained.

In cases of cut throats, as a rule, the injury involves the air pass-

age and the vessels of but one side, and under such circumstances if immediate medical aid be available, the ligature of the bleeding vessels may be followed by recovery. Where, however, both sides of the neck are swept by the knife, and the cut is "from ear to ear," the end is accomplished too thoroughly and quickly to allow of assistance.

XI. LESIONS OF THE CIRCULATORY SYSTEM.

Aneurism—Embolism and Thrombosis—Lymphangitis—Nævus—Phlebitis—Varicose Veins.

ANEURISM.

(See also p. 175 of Vol. I. of this work.)

J. M. DA COSTA, M. D., PHILADELPHIA.

This author states there are but two remedies in which he has any faith, in the radical treatment of internal aneurism. The first is *iodide of potassium*. It should be used boldly. The following recipe was given continuously for ten months, with the most marked beneficial results, in a case of chronic aneurism:

515.	R. Potassii iodidi, Syrupi tolutani, Aquæ,	gr. xv		
		āā	f. 3j.	M.

For one dose, thrice daily.

This remedy does no good excepting early in the disease.

The second remedy referred to is *ergot*. It is not yet known definitely how much good it really does. Some very excellent results have been obtained by LANGENBECK. It may be given internally or by hypodermic injections.

In a disease so dangerous, so almost necessarily fatal, the importance of a knowledge of any remedy which seems to exert an influence is apparent. As both the iodide of potassium and ergot can be tried without injury to the patient, it is the duty of every practitioner, in cases of internal aneurism (in which, of course, surgical treatment is out of the question), to try one or the other of these drugs.

The following formula may be used for the hypodermic injection of ergotin:

516.	R. Ergotinæ, Spiritus vini rectificati, Glycerini,	gr. ij		
		āā	f. 3ss.	M.

Five minims (equal to gr. $\frac{1}{4}$ of ergotin) for a dose. This is the formula of EULENBERG.

Prof. LANGENBECK employs the aqueous extract of ergot or *Bonjean's ergotin*. It is usually administered hypodermically in the dose of gr. $\frac{1}{4}$. In a case reported by LANGENBECK, thirty grains of this preparation were injected in forty days with great benefit. The subclavian aneurism diminished in size, and the other symptoms improved.

Prof. BARTHOLOW gives the following formula :

517. R. Extracti ergotæ fluidi (U. S. P.), f. 3 ij.
Carefully filter and inject in ten-minim doses.

A. T. H. WATERS, M. D., OF LIVERPOOL.

In the *Lancet*, April, 1872, this writer recommends absolute rest, so far as possible, and a restricted diet. The patient should not so much as sit up in bed for weeks. His medicinal treatment is *iodide of potassium*, twenty grains three times a day, continued for months. The application of an ice-bag over the tumor has also produced good results at his hands.

Dr. WARD (*Medical Times and Gazette*, September 26th, 1874,) also found decided value in the application of the *ice-bag*. He also administered digitalis with iron, and succeeded in causing the disappearance of the evidences of the tumor in a case of thoracic aneurism.

JOLIFFE TUFNELL, F. R. C. S. I.*

The object of Mr. TUFNELL'S treatment is to obtain consolidation of the contents of the sac. It is especially adapted to the earlier stages of internal aneurisms. He records ten cases of cure, and others have been reported. The objects in view are to diminish the heart's action and increase the proportion of solid constituents in the blood. Continued rest in the horizontal position is the factor of most importance. It should be maintained for eight or ten weeks without the patient once sitting erect. The bed, therefore, should be comfortably arranged in every respect.

The diet is to consist of three regular meals, as follows: breakfast, 2 oz. of white bread and butter, with 3 fl. oz. of cocoa or milk; dinner, 3 oz. of broiled or boiled meat, with 3 oz. of potatoes, and 4 fl. oz. of water or light claret; supper, 9 oz. of bread and butter, with 2 fl. oz. of milk or tea, making an aggregate of ten ounces of solid

* *The Successful Treatment of Internal Aneurism*, London, 1876.

food and eight ounces of fluid in twenty-four hours. If thirst is very great, a pebble or very small pieces of ice may be held in the mouth. For wakefulness, lactucarium, gr. v, may be given when necessary. If there is bronchial irritation and cough, he prescribes:

518. R.	Lactucarii,	gr. xx	
	Extract. hyoseyami,	gr. x.	M.
Make six pills. Two at bedtime.			

If the patient has difficulty in swallowing the pill, he prescribes:

519. R.	Tinct. lactucarii,	f. 3j	
	Aquæ lauro-cerasi,	℥xl	
	Tinct. hyoseyami,	f. 3j	
	Aquæ,	f. 3j.	M.
Take at night.			

The bowels are to be carefully regulated, and aperients given only when necessary, the most suitable being pulv. jalapæ co., pil. col. co., and pil. rhei. co.

Should the urine become so charged with salts as to scald on micturition, he gives bicarbonate of potash, gr. x, in aquæ f. 3j, from time to time.

Pain is frequently met with, and must be relieved by the free use of narcotics. A very useful prescription is:

520. R.	Liquoris sedativi (Battey),	℥. xxv	
	Liquoris ammonii acetatis,	f. 3j	
	Liquoris antimonii et potassii tart.,	℥. xx	
	Aquæ frigidæ,	f. 3j.	M.
For one dose.			

The hypodermic injection of morphia is very useful. A few leeches on the thorax, near the aneurismal sac, often relieve the pain; as does sometimes change of position, as lying prone, or the application of a heated smoothing-iron.

DR. S. FLEET SPEIR, OF BROOKLYN.

A threatening case of aneurism of the abdominal aorta is reported by this writer as completely cured by keeping the patient in bed for two months, with the following internal remedies. (*Medical and Surgical Reporter*, March, 1874):

521. R.	Liquor. ferri subsulphatis,	℥. iv.
This amount three times a day.		

Alternated with

522. R.	Acidi gallici,	3ss.
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DR. T. W. GRIMSHAW, OF DUBLIN.

In several cases of abdominal and thoracic aneurism, this physician has found beneficial and even successful results from *aconite*, united with as complete rest as possible. He uses :

523. R. Tincturæ aconiti radicis,
This dose every three hours.

℥v. M.

When the symptoms of poisoning from the drug become unpleasantly marked, the dose should be reduced one-half. The diet should be low, consisting of bread and tea, beef-tea and soup, but no stimulants. From two to three months must be employed to effect the best results. (*The Medical Press and Circular*, May 17th, 1876.)

A combination of iodide of potassium with carbonate of ammonia is found to increase largely the efficiency of the former, in internal aneurism as well as syphilis, etc., a fact first noticed by Sir JAMES PAGET. The following has been found by Dr. JOSEPH P. MCSWEENEY, "of the greatest service in internal aneurism." (*British Medical Journal*, January, 1874) :

524. R. Potassii iodidi,
Ammonii carbonatis,
For one dose.

gr. v
gr. iij. M.

PROF. T. M'CALL ANDERSON, M. D., OF GLASGOW.

In 1875 this physician described, before the British Medical Association, several cases of aneurism of the arch of the aorta, successfully treated by *galvano-puncture*. The rules he lays down for its use are as follows :

1. It is safer to attempt a cure by means of chemical, than by means of inflammatory action ; and, therefore, in every case, the continuous-current battery should be employed.

2. He always employs one of Stohrer's large-celled batteries ; but the kind of instrument is not of great consequence, provided the cells are large.

3. The needles should not be very thick, and should be insulated to within half an inch of the point, for we must aim at acting upon the blood in the aneurism only.

4. Should the needles be connected with the positive or negative, or both poles ? The balance of opinion seems to be in favor of connecting them with both, although Dr. ANDERSON prefers connecting the needles with the positive pole only.

5. He uses a weak current, as it gives little or no pain, and does not excite serious inflammation.

Dr. ANDERSON considers the operation comparatively safe, but thinks there is a question whether the consolidation of the portion of the tumor which approaches the surface, may not, in some cases, favor the extension of the disease in other directions.

DR. JOHN ASHHURST, JR., OF PHILADELPHIA.

In the treatment of aneurism of the arch of the aorta, involving the innominate or the left carotid or subclavian, this surgeon (*Univ. Med. Mag.*, 1890) believes that where medical treatment of careful and prolonged use has produced no result, distal deligation of the vessels arising from the aortic arch is a justifiable procedure. For the immense majority of aortic aneurisms he does not doubt that medical and hygienic treatment alone should be recommended, but in selected cases the question of operation may properly be entertained. Should the position of the tumor in the left side indicate sufficiently clearly the non-involvement of the innominate artery, the choice should lie between ligation of the left carotid alone and ligation of both the carotid and subclavian of the left side. Dr. ASHHURST would be disposed to prefer the double deligation, which does not add materially to the danger of the procedure, but which would much more effectually divert the blood-current from the sac. Where the aneurism is upon the right side, the innominate is apt to be involved, and he doubts not the preferable operation is the double one. He prefers to tie the subclavian in its third part, and the carotid above the line of the omo-hyoid muscle.

DR. F. A. MACEWEN, ENGLAND.

(*London Lancet*, 1890.) This gentleman believes that in every aneurism there exists the means of self cure, and that the result is invariable whenever a method sufficient to induce it is applied. This cure is the coagulation of the blood, particularly the formation of white clots in the sac of the aneurism. These white clots are more likely to be stable, are less likely to break down, are more resistive, and are more likely to undergo organizing attempts than red clots. In order to induce the formation of such clots in the aneurismal sac, MAC-EWEN employs a very delicate needle of sufficient length to transfix the aneurism and to permit the operator, when it has been thrust into the aneurismal mass, to scratch the inner wall on the op-

posite side over its entire extent. If this cannot be effected from one point of insertion, the operator may thrust the needle in at several points until the inner wall of the sac is well roughened. Upon these irregularities thus produced, the blood clots more regularly and the clots are apt to be free or nearly free from the red cells, as the periphery of the current is usually occupied by the white cells, and as these are more likely to adhere than the red cells. The needle should not be left in place any great length of time, as the object is not the formation of clots upon it, but upon the walls of the sac.

Methods having in view this latter object, the clotting of the blood upon a foreign body, have been devised frequently. STIMSON, for example (*New York Med. Jour.*, 1889), suggests the cautious introduction of a very fine wire so that it coils about in the sac, and then the passage of the electric current over it. PHILIPPE (*Le Progrès Méd.*, 1890,) suggests that wires be cautiously passed into the sac so that they may arrange themselves spirally on the interior and serve as a basis for coagulation; they should, of course, be thoroughly aseptic before introduced.

MR. C. F. MAUNDER, SURGEON TO THE LONDON HOSPITAL.*

The mode of treatment which this author advocates for the cure of popliteal aneurism and all other suitable cases, is moderate compression, alternating with relaxation, say for a fortnight, with a view partly, if thought desirable, of promoting a more free collateral circulation in the limb; and, at the expiration of this time, *continuous* compression, either digital or instrumental (completely obstructing the artery) maintained under chloroform or opium, if necessary, for a period varying from six to twelve hours, or even longer, and assisted by a tourniquet on the distal side of the sac, if the first attempt does not succeed. Should a few sittings fail to effect good progress in the cure, the ligature would be the next resort.

He sums up the general principles of treating aneurisms as follows:

1. No aneurism is to be regarded as necessarily incurable.
2. Some cases in internal aneurism are apparently cured by absolute and prolonged rest, restricted diet, and other medical treatment.
3. When possible, compression, either proximal or distal, is to be employed in addition.
4. In all aneurisms in which treatment by ligature is known to be a fatal operation, the above rules are to be first applied.

* *Surgery of the Arteries*, London, 1875.

5. The treatment of progressive aneurism at the root of the neck, by the distal operation, is justifiable after medical treatment has failed.

6. In rare instances only may an aneurism be treated by ligature before compression has been tried and has failed.

7. Digital is to be preferred to instrumental compression.

8. Anæsthetics and morphia are valuable aids to compression.

9. Chloroform will, probably, prove to be a more effectual agent than morphia in all cases but the more hazardous.

10. The value of morphia should be more thoroughly tested.

M. DENUCE, OF LYONS.

A case of aneurism of the anterior tibial artery is reported by this surgeon (*Lyon Medical*, 1876,) in which he effected a cure by injecting into the sac the following solution:

525.	R.	Ferri perchloridi,	gr. viij	
		Aquæ,	f. 3j.	M.
Seven drops for an injection.				

The artery was compressed above and below the tumor for ten minutes, at the expiration of which time all pulsation had ceased. A compressing bandage was applied and kept on for some days, when the cure was found to be perfect. Immediately upon the introduction of the fluid, cramps came on in all the toes, and there was marked redness of the anterior part of the flesh. Both of these, however, vanished very quickly. D. advises this mode of treatment only in cases in which the artery can be compressed with certainty upon both sides of the tumor, and he also advises compression by means of a bandage for some time, to insure the formation of a clot. The strength of the solution used in this case was but 15 per cent. GIVALDIS thinks it better to use one having a strength of 25 to 30 per cent., as a tougher and more solid clot is formed, and the danger of embolism is less.

The danger of this last named accident by a procedure such as this is by no means small, and must always be considered as a contra-indication for its employment.

NOTES ON REMEDIES.

Aconite is a valuable agent to lower the blood pressure. Its physiological effects must be produced and maintained.

Alumen in doses ʒss-j, thrice daily, is said to have aided the coagulation of the contents of the sac.

Barii Chloridum. This substance, in doses of gr. '—', three times a day, has been successfully tried in aneurism by Dr. F. FLINT (*Practitioner*, July, 1879). He says of it: "In my opinion, preference should be given to the chloride of barium in fusiform aneurisms, which have hitherto not been very amenable to treatment, and also in the aneurisms of advanced age."

Chloral Hydrate is an important adjuvant for lowering the blood pressure in internal aneurism.

Chloralamid has been used to allay the pain consequent upon intrathoracic aneurism, in doses of gr. xv to lx, by Dr. STEELE (*Pacific Med. and Surg. Jour.*, 1890).

Digitalis. Dr. J. M. FOTHERGILL asserts that this drug "spurs on the natural efforts to rupture the sac." Yet some have prescribed it for the palpitation, etc. Mr. T. HOLMES recommends that it be combined with iodide of potassium in internal aneurism when the heart's action is excited (m̄v-viij at a dose). At the session of the British Medical Association in 1877, Dr. CLIFFORD ALBUTT (Leeds) laid before the meeting the remarkable results to be derived from digitalis in the treatment of aneurism, which he considered *the* drug for this disease. It should be given in increasing doses until it brought down the pulse to 45, which should be kept at this rate so long as the patient tolerated it, even for months. Dr. ALBUTT had watched two cases for three and nine years respectively, and these were at least in abeyance. Experience had proved to him that such modification of the heart's force was the reverse of injurious. Dr. MACKAY (Birmingham) bore testimony to the value of iodide of potassium in the treatment of aneurism, and also to the beneficial effects of digitalis.

Ergota. Highly commended by Dr. DA COSTA and others. *Ergotine* has also been employed. Prof. VON LANGENBECK uses :

526. R.	Ergotinæ,	gr. j-iv	
	Æquæ des.,		
	Glycerini,	āā	q. s. M.

For one hypodermic injection, to be thrown into the neighborhood of the tumor every day or every few days.

Ferri Perchloridi Tinctura. The injection of this, or some other ferruginous styptic, has proved useful in small aneurisms. Prof. BILLROTH recommends it in those of spontaneous and traumatic origin. The danger is that fragments of the clot will float into the circulation and produce embolism. To prevent it, compression above and below the sac is requisite (p. 380).

Gallicum Acidum has been highly praised. Dr. S. F. SPEIR, of Brooklyn, combines it with subsulphate of iron. (See page 376.)

Plumbi Acetas has been given in doses of gr. ij-xx daily, with occasional suc-

cess, even in undoubted aortic aneurism. It must be given for many weeks successively, the doses gradually increased, but lessened or suspended if symptoms of plumbism occur.

Potassii Iodidum. The use of this drug, together with complete rest and a restricted diet, was first suggested by Dr. GRAVES, of Dublin. Dr. BALFOUR gives it in large and repeated doses. (See Vol. I., p. 176.) Smaller doses, combined with carbonate of ammonia, are said to produce equal effect. Dr. FOTHERGILL says this plan of treatment for internal aneurism, with small doses of hydrate of chloral added, is "therapeutically perfect."

Tannicum Acidum, in doses of gr. v-xv, has been used.

Veratrum Viride. This remedy, used to depress the circulation, is an important adjuvant to the surgical measures in aneurism. In large internal aneurisms it is a powerful adjunct to other remedies, in slowing the circulation. This effect should be accomplished, however, without producing vomiting. The patient should, therefore, remain absolutely in the recumbent position, and a little opium should be combined with the veratrum. (BARTHOLOW.)

EXTERNAL MEASURES.

Cold. The application of ice to the surface of the tumor is said to have acted beneficially in some cases. But it is a painful remedy and there is risk of sloughing of the skin.

Emplastra. When the pain attending the increase of the tumor is considerable, the application of *belladonna* or *hemlock* plasters often gives relief. Or anodyne embrocations may be used, as

527. R.	Tinct. aconit. radicis,			
	Olei olivæ,	āā	f. ℥ ij.	M.
Apply on cloth to the part.				

Excision of the aneurismal sac is occasionally performed as part of the radical cure of the condition. It is particularly adapted to superficial aneurisms, as those of the popliteal artery.

Galvano-puncture is appropriate in a small minority of cases where the vessel implicated is of moderate calibre.

Poultices. Astringent poultices have been thought to be of service. The application of a *tan poultice* to the epigastric region is reported to have greatly relieved one case. (Dr. W. ARDING, in the *Medical Times and Gazette*, November 4th, 1876.)

Pressure is a successful method of treating aneurism. When it can be carried out, compression of the artery above with the finger is by far the best plan. (HOLMES.) The pressure must be equable and sufficient to stop the whole circulation (8 lbs. will stop that of the femoral artery).

Instrumental compression by weight, with a point not larger than the finger end, may be instituted in place of digital compression. Numerous instruments are devised for the purpose.

The Esmarch Bandage. Several cases cured by the application of this bandage have been reported. In all, the aneurism was of the popliteal artery. In all but one case the treatment was commenced by completely arresting the circulation in the limb for *one hour* by means of Esmarch's bandage, pressure being kept up after this time by means of a tourniquet. In all the successful cases the bandage was so applied that the sac was filled with blood at the time the circulation in the limb was arrested. From the consideration of these cases, it seems that the conditions to be observed as most favorable to success are the following—namely, that the circulation in the limb should be for a time completely arrested, that the aneurismal sac should be full of blood, and that the circulation in the aneurism should be stopped for a sufficient time to allow the blood to coagulate. For how long a time it may be prudent to exclude the blood from the entire limb by the Esmarch bandage, and when the more local effect of the tourniquet should be substituted for the Esmarch bandage, is a matter for further investigation. It is, however, probable from the experience of long operations for necrosis performed under the Esmarch bandage, that surgeons have not yet reached the limits of safety as regards the time during which the bandage may remain on the limb. The advantages of this method are that it is rapid in its action, easy of application, requires neither complicated apparatus nor a large staff of assistants, and may therefore be employed in private practice as easily as in hospitals. The period of its application being comparatively short, the administration of ether would be justifiable if the pain, which is generally complained of after a short time, prove unduly severe. Compression for an hour seems to be quite adequate to insure complete stasis in the aneurism, and it is well known that the lower limb may be kept bloodless for much longer periods than that, without any bad results following.

EMBOLISM AND THROMBOSIS.

When coagula have floated into the vessels, producing venous or arterial *embolism or thrombosis*, the treatment is mainly expectant. Perfect rest is essential. Stimulants, tonics and nutritious food are called for to sustain strength; opiates to subdue restlessness. The limb must be kept warm and slightly raised. Surgical interference, of any kind, is dangerous.

As to whether any substance can be administered by the mouth or injected into the vessels to dissolve the clot, observations are not conclusive. The *liquor potassæ* and *liquor ammoniæ*, in dilute solution, have been suggested for injection. Dr. BENJAMIN W. RICHARDSON, in a communication to the Medical Society of London, in 1876, related four cases in which he had administered ammonia in large doses, for the purpose of causing resolution of fibrine in the right side of the heart, or in the great vessels. In three of the cases the treatment was successful, but the fourth had a fatal termination, the patient dying from cerebral effusion.

Dr. HILTON FAGGE, of London, for the results of simple embolism, recommends, though hypothetically, the administration of ten-minim doses of liquor ammoniæ, in iced water, every hour, with three- to five-grain doses of iodide of potassium, every alternate hour.

Dr. BARTHOLOW considers that not only when thrombosis is actually existent, but even when it is threatened, as in the puerperal state, after free hemorrhage, when the circulation is languid from weak heart, a state of hyperinosis being present, it is perfectly safe and legitimate to practice the intravenous injection of aqua ammoniæ, f.5j-ij, diluted with an equal measure of water.

THOMAS HAWKES TANNER, M. D.

As thrombi are mostly met with in conditions of great exhaustion, as after extensive hemorrhage, in endocarditis, purpura and the puerperal state, the indications, generally, are to support the vital powers and allay irritability. For this purpose, the usual forms of concentrated nourishment and stimulants must be liberally, but judiciously, given. Pure air, perfect rest, and opiates as needed, are essential features of the treatment. The following combination is valuable where it is feared the deposit of fibrine has taken place in one of the large vessels of the heart:

528. R.	Ammonii carbonatis,	℞iss	
	Extracti opii liquidi,	℥lxxx	
	Spiritus ætheris,	f. ʒ iij	
	Decoctum cinchonæ flavæ,	ad f. ʒ viij.	M.
One-sixth part every three or four hours.			

The *sulphite of magnesia*, in doses varying from ℥j-ij, dissolved in f.5j-ij of water, has been recommended in such cases. Its efficacy is not yet determined. The *iodide of potassium* is believed by some

to produce absorption of the thrombus, and may be administered gr. x-xv three or four times a day, for a long period, in chronic cases. *Mercurials*, which also have a reputation for the same power, are generally contra-indicated by the exhaustion present.

In exhausted states, as in typhoid fever, it is not very uncommon to have thrombosis occur from low-grade inflammatory states in the vascular walls. Embolism is also not very infrequent. When thrombosis takes place, the part should be placed in absolute rest, in a position interfering as little as possible with the establishment of collateral circulation. The patient should be sustained by tonics and by as abundant a dietary as can possibly be received. Massage should not be performed for fear of loosening parts of the clot which might proceed further and set up another train of symptoms. The part should, however, be kept in a normal temperature, and sedative lotions may be applied upon cloths to ease any pain which is present, or opiates as Dover's powder may be given internally. As a means of aiding absorption, the iodides, of which perhaps iodide of iron is best suited, are to be commended. Support of the part, particularly if it be the lower limb, with a tight-fitting bandage or an elastic bandage, is of great comfort.

LYMPHANGITIS.

PROFESSOR THEODOR BILLROTH.

Inflammation of the lymphatic vessels is a not infrequent result of simple and poisoned wounds of the extremities. The object in the treatment is to obtain resolution, and prevent suppuration, if possible. The patient should keep the affected limb in absolute quiet; if an arm, it should be placed in a splint; if a leg, the patient should remain in bed.

When there is gastric derangement present, as is often the case, an *emetic*, or emeto-cathartic, is indicated. Not unfrequently the disease promptly subsides after the purgation and sweating induced by such a remedy. Among local remedies, rubbing the whole limb with *mercurial ointment* is particularly efficacious. The limb should be covered warmly, so as to maintain an elevated temperature. For this purpose, wrapping it in cotton wadding is very suitable.

Should the inflammation increase in spite of this treatment, and

diffuse redness and swelling occur, suppuration will take place at some spot. As soon as fluctuation is perceived, an opening should be made, and the pus evacuated. Should healing be retarded, it may be hastened by daily *warm baths*; these are particularly useful where there is a great tendency for the disease to return to a spot once attacked.

The disease rarely extends beyond the axillary or inguinal glands of the affected limb; but occasionally it is followed by pyemia or pleurisy, usually in a subacute form. (See also Poisoned Wounds, p. 154, and Dissecting Wounds, p. 183.)

DR. THOMAS HAWKES TANNER.

In the treatment of lymphangitis, the patient should be placed on a bed, in the centre of a well-ventilated room, and unusual attention given to his hygienic surroundings. During the day, he should drink freely of a solution of *chlorate of potash*, in lemonade or barley-water, ʒj to Oj. Cathartics are generally called for, especially if the bowels are constipated and the patient robust. Sulphate of soda or magnesia may be used.

In almost all cases, after the immediate onset of the disease has passed, there is need of concentrated nourishment, stimulants and tonics. Eggs, cream and extract of beef, the brandy-and-egg mixture, wine or spirits, are demanded. The following is a useful combination:

529. R.	Ammonii carbonatis, Tincturæ lavendulæ comp., Infusi cinchonæ flavæ,	Diss f. ʒj ad f. ʒ viij.	M.
One-sixth part every six hours.			

Acidulated drinks are sometimes refreshing and valuable where there is alkaline reaction in the saliva and a foul breath.

530. R.	Acidi hydrochlorici diluti, Mellis, Decocti hordei,	f. ʒ ij-iiij. f. ʒj Oij.	M.
For a daily drink.			

Later in the disease, quinine and iron will be needed to hasten convalescence.

Locally, warm fomentations and large linseed-meal poultices, applied warm and frequently changed, give the greatest relief.

As the disease is often the result of the absorption of some poison-

ous matter by the lymphatics, this will require appropriate local treatment.

Internally, in such cases, the *sulphites* and sulphurous acids (also the sulpho-carbolates) have been recommended. These substances are yet under trial, but may properly be exhibited experimentally.

If red lines have begun to stretch up the limb, Prof. AGNEW recommends that it should be encircled by a blister above the disease, which, if timely applied, will stay the further progress of this inflammation.

CAVELLI (*Gaz. Med. de Paris*, 1890,) has obtained excellent results from the local application over the red lines of lymphangitis of a solution of picric acid (1 or 2:250).

NÆVUS.

In the treatment of a nævus the object is either the entire destruction of the formation, or the alteration of its structure so as to diminish its vascularity and cause its contraction to the level of the surrounding skin if it be at all turgid. The means at hand are the coagulation of the blood it contains by agents introduced through minute punctures of the skin, the introduction of setons, ligature, electrolysis, the galvanic cautery and constant pressure. The use of local injections is perhaps the most convenient of all these, but is not unattended with danger, as, if the tumor is very vascular, there is risk of causing embolism from small coagula being carried out into the general circulation. Solutions of nitrate of silver, chloride of iron, carbolic acid and numerous other substances, have been advanced for the purpose of coagulation of the blood in nævi by injection with a hypodermic needle, but one cannot exercise too much caution in employing the method.

Dr. DE SMET, of Brussels, has found that small nævi may often be dispersed by tattooing with croton oil.

Dr. HENRY G. PIFFARD, of New York, expresses the opinion that in the capillary nævus, or "wine-mark," probably the best method of treatment is to paint, lightly, the surface, or part of it, if large, with nitric acid. When the cauterized epidermis exfoliates, the nævus should be found to have slightly diminished. The application can

then be repeated. It should be done by means of a small probe, around the end of which a little cotton has been wrapped.

In this form of *nævi*, however, the treatment advocated by Mr. BALMANO SQUIRE, of London, is preferable. He scarifies the affected skin with a series of short incisions, about one-sixteenth of an inch apart, to the depth of nearly dividing the *cutis vera*. Interposing a piece of white blotting-paper, he exercises gentle pressure with the finger for about ten minutes. This checks the bleeding. In a fortnight the surface is healed. If necessary, the operation may then be repeated.

DR. DAWSON, OF NEW YORK CITY.

This surgeon prefers to all other means, in the treatment of *nævi*, the *galvanic needle*. In its use, however, certain important precautions are required. For superficial *nævi*, all that is required is a degree of heat that will radiate into the deeper tissues from the surface. If too intense heat be used, the skin will be removed with the needle, knife or platinum strip, whichever may be employed, and the appearance of the *nævus* will, subsequently, be the same as it was before the application; whereas, if the platinum be only heated to a dark-red color, destruction of tissue will not be produced, and the vessels will be made to shrink by the radiated heat. For all superficial *nævi*, of moderate size, a single thorough application is all that is required to effect a cure. In treating a subcutaneous *nævus*, a white heat becomes necessary, in order that the knife or needle shall retain sufficient heat to be of service when it has reached the deeper tissues. *Nævi* having large surfaces may be destroyed at different times; and considerable portions will also be destroyed by the moderate inflammatory action which follows each operation. A point especially insisted upon by Dr. DAWSON is, that the galvanic cautery does not, in any true sense, produce a coagulation or thrombosis in the vessels, like that produced by astringent injections, but rather a clot that becomes rapidly organized, and a shrinking in the calibre of the vessels, which remains permanent, and that this can be effected without destruction of tissue. If too hot a needle or knife from the galvano-cautery be introduced into tissues, there will be as much hemorrhage as after the use of a cold, sharp knife.

MARSHALL advocates (*London Lancet*, 1889) electrolysis as the most satisfactory means of dealing with *nævi*, because of its freedom from danger of causing embolism, the absence of after pain and of

hemorrhage, and because the resulting scar is white and does not tend to contract much and thus deform loose structures as the eye-lids, for example. He inserts a needle attached to the *positive* pole well under the surface of the tumor and keeps it there for some time, changing its position without withdrawing it from the skin wound. The current is formed by a rheophore attached to the negative pole, thus avoiding an unnecessary puncture. When the needle is withdrawn it is first rotated, and the opening is covered with collodion. When the nævus assumes a dusky hue the treatment has been continued long enough, and the needle may be withdrawn. The slowness of the cure, the necessity for repeated applications, is the greatest objection to the method.

Mr. THOMAS (*Med. News*, 1890) at a recent meeting of the Midland Medical Society, of England, reported and exhibited three cases of nævi treated by the application of collodion. This substance was painted over the nævus in each case, and over the skin in the vicinity. In all, very marked improvement had resulted from the constant, slight pressure exercised by the collodion when dry and contracted, and further treatment by operation was made entirely unnecessary. The great advantage possessed by this method is the absolute absence of risk, being capable of use in positions where almost any other method of cure would be unjustifiable.

PROF. JOSEPH LISTER, OF LONDON.

531. R. Acidi carbolici puris, ℥ ij-v.
To be injected, as evenly as possible, in minim doses, over the whole tumor.

This injection can be repeated at intervals of four or five days, if necessary. If the tumor is very vascular, it may be prudent to transfix its base with hare-lip pins, and strangle it with a ligature tightly fastened beneath them.

PROF. ZEISSL, OF GERMANY.

This surgeon recommends the use of his "antimonial plaster."

532. R. Ant. et potassii tartratis, 3j
Emplastri adhæsivi, 3v. M.
Apply on the nævus and a little beyond its edges.

This brings about pustulation in from five to seven days. If this is profuse, the wound can be dressed with rags wet with oil; if but little, the paste may remain on until it falls off. Usually, the spot

will be healed in two weeks, leaving a slight scar. The process is said not to be very painful.

NOTES ON REMEDIES.

Caustics. These are especially applicable when the tumor is of comparatively small size, and is upon the edge of the lip, the tip of the nose, the brow, or the cheek. The application of strong *nitric acid*, on a needle or a piece of wood, held against the spot for a considerable time, has the effect of producing an eschar, which separates with a certain amount of inflammation; that inflammation coagulates the blood, and gradually obliterates the tumor. *Chloride of zinc* is preferred by some surgeons; the acid nitrate of mercury by others; or nitrate of silver, chromic acid, etc. With any of them a depressed cicatrix will remain.

Coagulants. Of these, perchloride of iron is the best, but its use is never safe. An instance is on record where an injection of a single drop brought about the death of a child in two minutes. Carbolic acid is less dangerous. Ferri persulphas, $\mathfrak{r}\text{ij}$, has also been used. Care should be taken that the fluid injected be distributed over the growth in minute portions; and the surgeon should be careful to do less at one sitting than is necessary for obliteration, trusting rather to repetitions of the operation, which ought not to be made at too short an interval. A preliminary disruption of the texture of the *nævus* with a tenotomy knife is advantageous, by permitting greater diffusion of the coagulating fluid; and, therefore, a greater effect with a smaller quantity than otherwise would be the case. With the precautions, that the circulation be controlled and the amount injected kept within due proportions, this method of treatment seems to be the best we have for *nævi* of moderate size, situated on the face, if they be mainly subcutaneous. It is safe, very successful, and leaves no scar.

Collodion. A *nævus* of small size, situated over a bone, will often disappear if painted with collodion every second or third day. Mr. COSFELD dissolves corrosive sublimate in the collodion.

533. R. Hydrarg. chlor. corrosiv.,
Collodii.

gr. v
f. 3j. M.

For painting the surface.

Electrolysis. Dr. I. J. KNOTT,* medical superintendent of galvanism in St. Mary's Hospital, London, reports, in the *Lancet*, March, 1875, forty cases of *nævus*, all successfully treated by this means. He gives the following directions as to his manner of proceeding: "I use Stohrer's and Meyer and Meltzer's continuous batteries, and judge, according to the size of the *nævus*, how many cells to use: six or eight are about

the average if the battery is in good working order. If the nævus is small, I use one or two needles attached to the negative pole, and one to the positive, and pass them into the tumor; but, if large, I put on several needles in the negative cord, and use charcoal point with the positive. After the needles have been in the tumor a short time, decomposition begins to take place; this is shown by bubbles of gas passing by the side of the needles. A clot is then formed, the tumor turns of a bluish white, and in this clot fibrous degeneration takes place, and ultimate cure is the result. The advantages of the galvanism are its certainty of action, its safety, the faintness of the cicatrix, and the cessation of pain directly after the operation is over. I have used every other method, and I certainly think this, by far, the best."

Hydrargyri Nitras. For removing moles, Mr. B. GODFREY recommends acid nitrate of mercury. His plan is to take a fine-pointed glass tube, and, having dipped it in the caustic solution, to dot all around the hirsute mass, upon the healthy skin, where they both join; then to dot points through the mass, like the white squares upon a chess-board, leaving the blank ones to be treated in a similar manner a fortnight hence. By such a method, he prevents too great an inflammatory action setting in, and makes a less scar in the future.

Oleum Tiglii. Dr. E. DE SMET, of Brussels, rapidly cures small nævi by pricking them with the points of needles dipped in Croton oil. He fixes a dozen needles in a cork, with their points slightly projecting, and, by a sudden movement, plunges them into the tumor. After the slight swelling and vesiculation thus caused disappear, he repeats the procedure. (*Presse Medicale Belge*, December, 1873.) No cicatrix is left, and the pain is slight.

Setons. A common mode of destroying nævi, of limited extent, is by producing obliterative inflammation in the tumor, by the introduction of a seton. The needle is threaded with cotton thread. The thread may be dipped in some acid substance, and the tumor may be transfixcd in several places, and the string left in the interior. The circulation is not very active, and the hemorrhage, in such an operation, is rarely worthy of notice. The thread left in the tumor produces a certain amount of inflammation, and that inflammation, coagulation round the thread: and, if two or three threads are passed through, there will be two or three lines of coagulation, and so it spreads till the whole tumor is consolidated. If the first instance does not succeed, another series of threads may be passed through, and, in the end, the tumor will be consolidated.

Sodii Ethylas. This caustic application has been successfully tried in nævus by Dr. B. W. RICHARDSON, of London. He brushes the surface lightly, and repeats as needed. The pain is slight, and, in superficial nævi, the result is good.

Solar Caутery. The rays of the sun, concentrated by a lens, have been employed at times. (See *Medical and Surgical Reporter*, Vol. XV.) Dr. HENRY G. PIFFARD, of New York, recently stated that he had found the solar cautery applicable to the treatment of lupus and chancroids, and believed that it might prove serviceable in nævus. While applying this cautery, the eyes should be protected from the brilliancy of the light by wearing colored glasses, else the operator will not be able to determine the exact outline of the cauterization. With a little practice, a line no more than a sixteenth of an inch in breadth can be obtained with considerable ease.

Vaccination may be employed where the child has not yet undergone it. Pure bovine lymph should be preferred, the matter being introduced in a great many places very close together. The plan is, however, "very uncertain." (HOLMES.)

Zincum. The chloride, the iodide and the nitrate of zinc have been employed to destroy nævi. The nitrate, according to Mr. MARSHALL, of London, penetrates deeper than the chloride, and possesses the further advantage of producing less pain.

PHLEBITIS.

Sir THOMAS WATSON recommends local depletion when the inflamed vein is accessible; regulation of the bowels; strong animal broths and wine to support the strength; opiates to tranquilize nervous irritability and restlessness. Our object is, in the first place, to subdue and resolve the inflammation; or at any rate, to prevent its passing beyond the adhesive stage. To this end, the vein being obvious and superficial, we apply leeches, cold lotions or fomentations. During the progress of the malady, especially when suppurative phlebitis is prevalent, it would be unsafe to cut into a large vein, lest by that slight violence we establish a fresh local phlebitis. Indeed, after the suppurative form has once been set up, general blood-letting does no good; but on the contrary, impairs the power of the system at large to struggle against the disease.

In phlebitis of the superficial veins, a *blister* applied over the course of the inflamed vein reduces the inflammation, hastens the absorption or liquefaction of the coagulated blood, and assists the restoration of the circulation through the obstructed vessels. (RINGER.)

The hardness which is often left after the removal of the inflammation may usually be removed by assiduously poulticing the part with cataplasms of *common salt and nitrate of potash*. (BASHAM.) The œdema which is apt to remain must be met with the application of blisters and the pressure of an elastic roller.

VARICOSE VEINS.

In the treatment of varicose veins it has been long a common practice to inject coagulating agents into the enlarged vessels and through the organization of the resulting clot to obliterate the vein. Particularly has this been the case in the treatment of varicocele and hemorrhoids at the hands of imprudent persons. While the principle of treatment is quite a proper one, the grave danger of causing embolism by some part of the clot being carried off into the general circulation, makes it a very reprehensible one unless practised with the greatest caution.

PROF. A. D. VALLETTE, OF LYONS.

This author has the following:

534. R.	Iodinii, Acidi tannici, Aquæ destillatæ,	gr. xv 3 ss f. 3 xvj.	M.
For local injection.			

During the operation a bandage is applied tightly round the limb above the vein to be operated on, and this is not to be removed for three hours after, for fear of embolism. The "iodo-tannic" solution is injected to an amount varying from ten to twenty-five drops. The effect is to cause immediate coagulation of the blood at the part acted on. At first there is no pain, but after a few hours a severe burning sensation sets in, and the vein begins to inflame slightly in each direction. This never reaches any serious degree, but it is sufficient to cause obliteration for some distance above and below the spot injected. The author states that there is no fear of embolism. He has operated in more than two hundred cases without any accident, and has found the results much more permanent and complete than after any other operation.

MOLLIÈRE follows much the same method, but keeps the patient

at rest and the bandage in place for fourteen days. By that time the vein is obliterated and feels like a small hard cord, and the danger from embolism is practically over.

DR. VOGT, OF BERLIN.

535. R. Ergotæ extracti aquosæ, 3ij
 Alcoholis, " āā f. 3j. M.
 Glycerini,

A syringeful injected in the vicinity of the varix under the same precautionary conditions as above.

DR. ENGLISH, OF VIENNA.

This writer reported in the *Mittheilungen* of the Vienna Medical College (November 8th, 1878,) the following method: The vein and a fold of the skin are caught up between the thumb and finger, and a needle of a Pravaz syringe is inserted in such a way that its point shall be immediately behind the vein. The contents of the syringe, from one to one and a half cubic centimetres of a fifty per cent. sample of alcohol, are then discharged in the immediate neighborhood of the vein. A small knot forms at the point of injection, and very often there is a momentary appearance of contraction in the veins. On the third day, there will be a considerable infiltration at the point of injection, which differs according to the irritability of different persons. In individuals who were very irritable, there was considerable redness produced, and in four or five cases suppuration ensued. The suppuration was only in the *neighborhood* of the vein, however; the vessel itself remained sound and healthy. The abscesses were as large as a bean, but gave rise to no trouble whatever. In none of Dr. E's. cases was there any rise of temperature, though he examined carefully with reference to this point.

Prof. S. C. CHEW, of Baltimore, (*Med. News*, 1890,) mentions four instances of femoral phlebitis occurring in the course of typhoid fever, and in the same journal the year before a number of similar cases were reported from DA COSTA's clinic in Philadelphia. Simple care, wrapping the limb in cotton batting, placing it in as easy a position as possible, and the administration of morphine to allay the pain, were employed by Dr. CHEW, with the ultimate recovery of all his cases.

DR. J. F. MINER, OF BUFFALO, NEW YORK.

This surgeon has reported very favorably in regard to the treatment of varicose veins by injection of the *persulphate of iron*. He

uses the officinal solution in the proportion of one drop to about ten drops of water. Injections may be made at different points. Immediate coagulation of the blood is produced, the vessel contracts, soon becomes a mere cord, while the blood circulates through the smaller and deeper vessels.

As to the objections raised against the operation—as, 1st, that it is liable to produce extensive ulcers; 2d, that there is danger of phlebitis; 3d, that there is danger of air in the vein—Dr. MINER states that if the vessel is dissected down upon, with careful touches of the scalpel, until its blue walls are plainly exposed, the point of the syringe carefully introduced into the vessel and nowhere else, and if the solution is reduced and not used stronger than above stated, with every precaution as to the perfect cleanliness and proper filling of the instrument, not one of these objections can be sustained.

Practiced properly, it is invariably successful and satisfactory.

The *hypodermic injection of chloral* into the vein has been recommended by Prof. PORTA, of Italy. He throws in gr. xv at an injection, and repeats it several times at five or six days' interval if required. The operation is rather painful, but is rarely followed by phlebitis. Coagula are formed, and the veins thus become blocked up and atrophied.

DR. LINON, VERVIERS, FRANCE.

This writer claims much success in the treatment of varicose veins by swathing the leg in a flannel compress wet with a solution of chloride of iron in water, forty-five grains to the ounce, and then applying a roller flannel bandage over it firmly for twenty-four hours. This is to be repeated daily for a week or two weeks.

DR. EDWARD R. MAYER, OF PENNA.

This writer states that he has employed, "with brilliant results," lotions of witch-hazel to varicocele and other varicose enlargements. His formula is:

536. R.	Concentrated tincture of hamamelis, Water,	f. ℥j Oj.	M.
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He believes that it exerts a specific effect on the venous system. (*Hints on Specific Medication*, 1876.)

Mr. COLLES, of Dublin, recommended central compression of the dilated veins, by means of a soft truss (as a ball of feathers). At

first sight this would seem more likely to increase the varicose condition; but in fact it has the reverse effect, probably through causing gradual dilation of the collateral venous circulation.

In all cases of varicose veins, the causes, which are often mechanical, as prolonged standing or sitting in one position, the presence of a tumor, tight garters, obstinate constipation, etc., must be inquired into.

Since the introduction of the antiseptic methods of operation, excision of the varicose veins has come more and more in vogue. If the vessels are on the leg, their course is first outlined with some marking substance, as aniline, and the Esmarch bandage applied. Then the veins are exposed by dissection along the tracings and excised, ligatures being thrown about the ends left in the limb. It is advocated by some to double ligate the long saphenous vein and divide it, believing that little blood passes along through it in case of bad varicosities of the leg, the downward pressure of blood causing the dilatations. In cases where this has been done excellent results have followed. The operation should be done near the saphenous opening.

DR. EDWARD MARTIN, OF PHILADELPHIA.

(*Univ. Med. Mag.*, 1891.) The modern method of dealing with varicocele—and one which thus far has seemed to accomplish permanent cure—consists in opening the scrotum, ligating the diseased veins *en masse* above and below, and excising the one or two inches of the varix lying between the ligatures. The operation is easy and can rapidly be performed. After pinching up a fold of skin overlying the diseased veins, transfixing it and cutting outward, the knife is used but little. The veins are reached by rapidly tearing through the loose cellular tissue, thus avoiding bleeding, a very small amount of which in the scrotum may give much trouble. The veins are ligated with fine silk, excised, and the wound closed without drainage, the strictest aseptic and antiseptic measures having been carried out.

XII. LESIONS OF THE DIGESTIVE SYSTEM (INCLUDING ABDOMINAL INJURIES).

Caries of the Teeth and Toothache—Stomatitis—Pharyngitis (Sore Throat)—Tonsillitis (Quinsy)—Tonsillar Hypertrophy—Stricture of the Esophagus—Stricture of the Pylorus (Cancer of Stomach)—Hernia—Intestinal Obstruction (Occlusion, Intussusception)—Intestinal Perforation—Typhlitis and Perityphlitis—Hemorrhoids—Fissure of Anus—Fistula of Anus—Prolapse of Anus—Pruritus of Anus—Wounds of Abdomen.

CARIES OF THE TEETH AND TOOTHACHE.

PROF. JAMES E. GARRETSON, M. D., D. D. S., PHILADELPHIA.

Caries is a disease most markedly of congenital association and predisposition. It may be confidently prognosed that the offspring of parents afflicted in this way will be in like manner afflicted; and that, on the other hand, the children of parents possessing good teeth will be in like manner favored. The general dyscrasiæ exert an injurious influence on the teeth, imparting to them a low grade of vitality, and rendering them incapable of resisting the chemical action of the agents with which they are necessarily brought in contact.

Of these agents the following are the most common and injurious:

1. *Mucous deposits.*—The mucoid fluid is often found to be glairy and tenacious, alkaline to the test, and more or less offensive in odor—a condition universally associated, when a habit, with dental caries and general dyscrasia. The teeth in such a mouth are covered with a film, so persistent that the ordinary use of the brush fails to disperse it, while the common dentifrices exert but a temporary good.

Teeth so diseased find relief alone in *acids*, not only locally employed but also internally administered. As a systematic medicine let the following be prescribed:

537. R.	Acidi hydrochlorici diluti,	gtt. x	
	Syrupi,	f. ʒss	
	Aquæ,	f. ʒj.	M.

For one dose, one to three times a day.

Conjoined with this, a grain of quinine may be given once or twice daily. As a mouth-wash, the following combination will be found applicable :

538. R.	Tincturæ capsici compositæ,	f. 3 ij	
	Aquæ colonicæ,		
	Spiritus vini,	āā f. 3 ij	
	Tincturæ quillayæ	f. 3 iss	
	Tincturæ gentianæ compositæ,	f. 3 j	
	Acidi acetici diluti,	f. 3 ss	
	Acidi carbolici fluidi,	℥ ij.	M.

To be used by saturating a tooth-brush which has first been dipped in water.

Where much offensiveness of odor is associated with this inspissated mucus, it may be necessary to use a gargle of the permanganate of potassium, or of the aqua chlorinata.

539. R.	Potassii permanganatis,	gr. xv	
	Aquæ,	f. 3 viij.	M.

For a mouth-wash; use as required.

Another most excellent preparation for such disinfection, is the *phenate of soda*. It is used diluted with water, ordinarily one part of the phenate to ten parts of water.

2. *Acid Secretions*.—When excessive acidity of the oral fluids is suspected, they should be tested with litmus paper in the morning on rising. If such test reddens the paper for a series of mornings, an antacid indication may be considered to be fairly established, and a prescription something like the following may be ordered :

540. R.	Potassii chloratis,	3 ss	
	Aquæ,	f. 3 iij	
	Tincturæ capsici comp.,	f. 3 ij	
	Aquæ colonicæ,	f. 3 j	
	Tincturæ quillayæ,	f. 3 iss	
	Olei gaultheriæ,	q. s.	M.

To be used with a brush.

Or a powder may be preferred, as

541. R.	Cretæ præcipitatæ,		
	Iridis Florentinæ pulveris,	āā 3 ss	
	Ossis sepis pulveris,	3 ij	
	Olei limonis,	q. s.	M.

Or,

542. R.	Cinchonæ rubræ pulveris,	3 ij	
	Capsici pulveris,	gr. x	
	Potassii chloratis pulveris,	3 j	
	Pulveris aromatici,	3 ij	
	Magnesiæ carbonatis,	3 ss	
	Iridis Florentinæ pulveris,	3 j	
	Saponis Castiliensis pulveris,	3 j.	M.

The different kinds of acids detected in the mouth furnish indications for constitutional treatment. If it is uric acid, there will generally be found deficient respiratory and circulatory action; if lactic acid, existing leukemia may be predicated.

3. *Parasites*.—Animal and vegetable fungi in the mouth are added causes of the deterioration of the teeth. To destroy them, few agents will be found more reliable than what is called the *dental car-bolic acid soap*. Powders used as dentifrices, remove them mechanically. Acid washes may also be prescribed. The *sulphite of soda*, ʒij to aquæ f.ʒj, has been highly praised. Sometimes an alternation of acid and alkaline washes will produce a quite wonderful change for the better, when either alone has been of little service.

4. *Electro-chemical Relations*.—These have reference to the influence which artificial dentures may exert, and should always be considered.

5. *Medicines and Articles of Food*.—Acids are not best given through glass tubes, but well diluted with water, and thrown into the back part of the mouth and swallowed in a single act. Sugar is not directly deleterious to the teeth, but only indirectly, as it disturbs digestion. Raisins rapidly corrode the teeth and are most tenacious in their lodgment.

6. *Accidental Influences*.—Cracking nuts with the teeth, the improper use of the file, the employment of a variety of metals as fillings, low gold alloys, and neglect of cleanliness, are frequent causes of caries. As an ordinary dentifrice, to be used once a day, the following may be prescribed:

543. R.	Cretæ preparatæ,	ʒij	
	Ossis sepia pulvis,	ʒss	
	Iridis Florentina pulvis,	ʒj	
	Cinchonæ rubra pulvis,	ʒj	
	Saponis albi pulvis,	ʒij.	M.
For a dentifrice.			

The causes of toothache may be classed under the following heads:

1. Sensitive dentine.
2. Exposure of the pulp to sources of irritation.
3. A diseased state of the periodontum.
4. Confinement of pus and gas in the pulp cavity.
5. Granules of osteo-dentine in the pulp.
6. Sympathy.
7. Recession and absorption of the gum and alveolus.

The treatment of these various conditions is briefly as follows:

1. *Sensitive Dentine*.—The most permanent means of cure is the introduction of filling into the cavity. As a temporary treatment, the excavation and polishing of the surface may be resorted to. Cauterization with the solid nitrate of silver, chloride of zinc, or with equal parts of the tincture of aconite and a saturated solution of iodine, is preferred by some. A method very satisfactory where the parts are very sensitive consists in introducing into the unexcavated cavity a filling of oxychloride of zinc.

2. *Exposure of the Pulp*.—The treatment of an exposed pulp is palliative and radical.

Palliative Treatment.—Foreign bodies are to be removed; the oral fluids, if irritating, changed by appropriate washes; soothing applications are to be applied, as warm tincture of hamamelis, oil of cloves, dilute creasote, equal parts of chloroform, laudanum, and tincture of aconite, persulphate of iron. In the odontalgia of first dentition, it is well that parents be provided with some general prescription. A very good one is as follows, to be applied by saturating a small piece of cotton and laying it loosely in the cavity:

544. R.	Creasoti,	gtt. vj	
	Tincturæ iodinii,		
	Liquoris plumbi subacetatis,	āā	f. 3j
	Chloroformi,		
	Tincturæ opii,	āā	f. 3ss. M.

In severe inflammation of the pulp, it may be necessary to resort to some more general measures. Blisters upon the nape of the neck will frequently result in speedy relief; hot pediluvia; saline cathartic medicines; diaphoretics, or diuretics. An inflammation of the dental pulp, if not too far advanced, will almost invariably be broken up by the administration of bromide of potassium, gr. v–xl, the application of a mustard poultice to the back of the neck, and a hot foot-bath continued from twenty minutes to half an hour.

The *atropiæ sulphas* is an invaluable agent in soothing the pain of an irritable pulp. If severe inflammation has not supervened, few instances will not be entirely relieved by the following:

545. R.	Atropiæ sulphatis,	gr. vj	
	Aquæ destillatæ,	f. 3j.	M.
Saturate a small piece of cotton, and lay in the cavity, which should be previously well cleaned.			

In the odontalgia of gout, *vinum colchici radicis*, gtt. xx, three or

four times a day, may be depended on. In rheumatism no combination seems better than the following. Its administration in the plethoric should be preceded by a free purging with a saline cathartic:

546. R.	Potassii iodidi,	℥ ss	
	Tincturæ colchici radicis,	f. ℥ ss	
	Extracti belladonnæ,	gr. vj	
	Tincturæ guaiaci compos.,		
	Aquæ cinnamomi,	āā	f. ℥ vj. M.

A tablespoonful three times a day in a little water to an adult; if it act too freely on the bowels, add opium, q. s.

Radical Treatment.—This is accomplished by destroying the pulp by means of escharotics. No better formula for a destructive nerve-paste can be given than this:

547. R.	Acidi arseniosi,		
	Morphinæ acetatis,	āā	gr. x
	Creasoti,		q. s.

To make a thick paste.

In very irritable conditions, it might be advisable to substitute sulphate of atropia for the sulphate of morphia. The effect of this application must be carefully watched. As a rule, the arsenic is not to be left in the adult tooth longer than fifteen hours, when it is carefully removed.

Disease of the Periodontæum.—This is generally periodontitis. In all ordinary cases, when seen in its early stages, the following routine treatment will seldom fail: Place the feet of the patient in very hot water until the patient grows faint or breaks out in a perspiration. Apply just in front of the ear, a fly blister of the size of a silver dime piece, and upon the nape of the neck a second, the size of a silver dollar. Internally give:

548. R.	Potassii bromidi,	gr. xxv	
	Tinct. veratri viridis,	gtt. v.	M.

For one dose every four hours.

Lance the gums freely with a very sharp lancet, and afterwards keep cotton applied, saturated with the fluid extract of *Hamamelis Virginica*. In the plethoric, in addition to the above course, half an ounce of the sulphate of magnesium may be given in a tumbler half full of water.

As adjuncts, leeches may be occasionally employed with advantage. They may be applied directly to the gum, or to the outside of the jaw.

A very simple plan of treating incipient periodontitis, and which will frequently be followed by immediate relief, consists in making a minute blister upon the gum overlying the affected root, through an application of the saturated tincture of iodine.

An acute periodontitis resisting the means here suggested, the attack increasing in severity, the surgeon finds himself compelled to abandon antiphlogistics, the indication being to advance the condition to the suppurative point as quickly as possible. To this end, heating and exciting medicaments are to be employed; warm water is to be held in the mouth; or a weak dilution of the tincture of capsicum, about twenty-five drops to a tumbler of warm water, may be used in the same way. The domestic application of a roasted split fig to the gum increases the heat of the parts, and invites supuration to the surface to which it is used.

4. *Confinement of Pus and Gas in the Pulp Cavity*.—The common treatment in all these cases is to remove the tooth, or else to drill an opening into the pulp cavity.

5. *Granules of Osteo-dentine in the Pulp*.—Drilling into the affected tooth and destruction of the pulp, or else extraction, are the only remedies.

6. *Sympathy*.—Sympathetic toothache may be associated with decay in other teeth, or with lesions in other organs, most commonly the ear, the uterus, or the stomach, in the order named. The erring organ once ascertained must receive the treatment.

7. *Recession and Absorption of the Gum and Alveolus*.—Toothache from this cause is not acute or severe, but rather dull. Little can be done, extraction proving usually necessary. The fluids of the mouth should be tested, and acids or antacids administered as required. One can use lime-water in one direction, and very dilute citric acid in the other. Recession sometimes comes from the employment of non-soluble dentifrices, recognizable from the presence of their particles at the edges of the gums. Turgid gums may be led to contract by free bleeding, secured through occasional scarifications.

J. FOSTER FLAGG, M. D., D. D. S., OF PHILADELPHIA.

As an escharotic paste for destroying the nerve, this practitioner prefers the following formula:

549. R.	Acidi arseniosi,	gr. v	
	Morphinæ acetatis,	gr. x	
	Olei caryophylli,	gtt. x.	M.
For an escharotic paste.			

For this substitution of oil of cloves for creasote, he argues that the latter was added for the purpose of alleviating the pain which is a frequent concomitant of the arsenical irritation. But this is still better attained by the oil of cloves, as this is but very slightly if at all escharotic, and possesses a very marked power of obtunding the sense of pain. (*The Dental Cosmos*, July, 1877.)

A favorite odontalgic with Philadelphia dental surgeons is:

550. R. Tincturæ iodinii,
Liquoris plumbi subacetatis diluti,
Tincturæ opii,
Chloroformi, āā f. 3ij M.
Apply upon cotton.

Gelsemium rarely fails to give decided and lasting relief in cases of neuralgic pains in the face and jaws, associated with carious teeth, grt. x-xx of the fluid extract three or four times a day.

551. R. Aluminis, 3ij
Etheris nitrici, f. 3vij. M.
Said to be an effective application in toothache.

552. R. Aluminis, 3j
Vini, Oj
Tinct. cinchonæ, f. 3ss
Tinct. myrrhæ, f. 3ij
Mellis rosæ, f. 3ij. M.

As a gargle and mouth-wash when the gums are spongy and ill-conditioned, and manifest a tendency to recede from the teeth.

Mr. JAMES MERSON, L. D. S., in the *British Journal of Dental Science*, 1878, states that the following formula will prevent the pain of tooth extraction. Hundreds of patients told him they did not feel the pain:

553. R. Chloroform pur., f. 3iij
Tr. aconiti (Fleming's), f. 3iij
Tr. capsici, f. 3j
Tr. pyrethri, f. 3ss
Ol. caryoph., f. 3ss
Gum. camph., 3ss. M.

The tooth and surrounding gums are to be previously dried, and then four or five drops of this applied with cotton-wool. Then without delay use the forceps, but the instrument *must be warmed*. This is most important. For toothache, a pellet of cotton-wool soaked in the above and introduced into the cavity, will give speedy relief.

The following odontalgics are recommended by various writers:

554. R. Tincturæ aconiti, f. 3ss
Tincturæ benzoini, f. 3ij. M.

Immerse a piece of cotton in this liquid, and introduce it into the cavity of the aching tooth.

555. R. Chloroformi,
 Creasoti,
 Vini opii, āā f. 3 ss
 Tincturæ benzoini, f. 3 ijss. M.
- Immerse a piece of cotton in this liquid, and introduce it into the cavity of the aching tooth.
556. R. Chloroformi, f. 3 iss
 Vini opii, f. 3 ss
 Tincturæ benzoini, f. 3 ijss. M.
- To be introduced by means of cotton into the cavity of the aching tooth.
557. R. Tincturæ arnicæ, f. 3 v
 Vini opii, m xv
 Aquæ destillatæ, f. 3 x. M.
- This mixture is to be held in the mouth for several minutes, to relieve the pains occasioned by general toothache.
558. R. Arsenious acid,
 Hydrochlorate of cocaine, āā gr. xv
 Menthol, gr. iij.
 Glycerine, sufficient to make a paste. M.
- Sig.—A small portion of this to be packed into the cavity.

BARDET (*Med. News*, 1891,) is said to recommend the following prescription for application to cavities in painful teeth:

559. R. Iodoform, 3 ss
 Oil of peppermint, gtt. v
 Oil of bitter orange, gtt. j
 Oil of lemon, gtt. ij
 Tincture of benzoin, gtt. j. M.

Or, the following may be employed:

560. R. Chloroform, f. 3 ij
 Naphthaline, gr. x. M.
- To be applied to the cavity on a small piece of cotton.

STOMATITIS.

APHTHOUS STOMATITIS.

JAMES E. GARRETSON, M. D., D. D. S.

Occurring in connection with acute diseases, aphthæ usually disappear with the condition which excited them; but appearing in connection with dyscrasic diseases, they often give the practitioner the greatest anxiety and trouble.

Acute aphthæ, as manifested in follicular inflammation, demand

the most attentive local treatment. Alterative and soothing applications are what are required, as :

- | | | | |
|---|------------------|-----------|----|
| 561. R. | Cupri sulphatis, | gr. v-xxx | |
| | Aquæ, | f. ʒj. | M. |
| For a lotion; an excellent application. | | | |

Or :

- | | | | |
|---------------------|--------------------------|----------|----|
| 562. R. | Tincturæ ferri chloridi, | f. ʒj | |
| | Quinina sulphatis, | gr. xxv. | M. |
| Apply to the parts. | | | |

Or :

- | | | | |
|---|-----------------------|----|----------|
| 563. R. | Pulv. cinchonæ ruoræ, | | |
| | Cretæ precipitatæ, | | |
| | Acidi tannici, | āā | q. s. M. |
| For a powder to be dusted over the parts. | | | |

Hydrochloric acid applied by means of a feather or small brush, causes less pain than might be supposed, and is thought by many to be the very best local application that can be employed.

Combined with these applications are to be employed the more soothing means. Starch, gum and slippery-elm water are very serviceable. Tincture of *hamamelis*, much diluted, is a good preparation. Another is the *phenate of soda*.

The bowels should be kept laxative by oil, the saline cathartics or aloe. The neutral mixture of lemonade is useful in inflammatory conditions. For the diarrhœa frequently seen, a combination like the following is suitable :

- | | | | |
|--|-----------------------|--------|-------------|
| 564. R. | Hydrargyri cum creta, | gr. ij | |
| | Pulveris opii, | | |
| | Pulveris ipecacuanhæ, | āā | gr. j |
| | Magnesi carbonatis, | | gr. xij. M. |
| Make twelve powders. One of these, for an infant, every two hours. | | | |

Prof. PENROSE uses the following very palatable and efficient combination in this and in the ordinary diarrhœa of summer, both in the infant and adult :

- | | | | |
|---------|----------------------|----|---------------|
| 565. R. | Bismuthi subnitratæ, | | |
| | Myristicæ pulveris, | āā | ʒij |
| | Cretæ preparatæ, | | ʒij |
| | Syrupi zingiberis, | | f. ʒ ijss. M. |

From twenty-five drops to a teaspoonful, according to age, repeated every two hours.

DR. ROBERTS BARTHOLOW.

566. R.	Potassii chloratis,	3i	
	Acidi carbolici,	f. 3 ss	
	Aquæ destillatæ,	f. 3 iv.	M.

For a lotion. Apply directly to the affected part.

"There is no more effective remedy for *ulcerative stomatitis*, the *stomatitis of nursing women*, and *aphthæ*."

DAVID (*Med. News*, 1891) uses the following as a tonic and antiseptic mouth-wash:

567. R.	Thymol,	gr. vij	
	Borax,	gr. xv	
	Water,	f. 3 iss.	M.

A few drops of this are to be placed in a wineglassful of warm water, and the mouth rinsed with it. In cases in which the breath is fœtid, owing to deposits about the tonsils and gums, the following wash is said to be serviceable:

568. R.	Borax,	gr. xv	
	Alcohol,	f. 3 j	
	Water,	Oj	
	Thymol,	gr. vij.	M.

In the infectious cases of aphthous stomatitis HERTZ (*Form. de la Fac. de Med. de Paris*) advises the following plan of treatment. As local measures, efforts to calm the pain of the ulcers should be taken by placing between the membrane of the lips and gums small wads of absorbent cotton wet with

569. R.	Salicylate of sodium,	gr. j	
	Hydrochlorate of cocaine,	gr. ij	
	Distilled water.	f. 3 ij.	M.

During the early stages gargles and inhalations of a mild character, and antiseptic, are indicated; later, when repair begins, astringent solutions should be used. In the matter of general treatment, quinine may be used for the febrile disturbance; and somnolents may be required to overcome the insomnia which is occasionally present. The bowels should be kept moderately loose; and intestinal antiseptics should be secured by some such remedy as this:

570. R.	Salicylate of bismuth,		
	Naphthol,	āā gr. xxx.	M.

To be taken in 24 hours.

Milk and soft-boiled eggs should constitute the major part of the diet.

DR. MAURICE JEANNEL, OF PARIS.

571. R. Tincturæ myrrhæ, āā f. 3 ij
 Mellis rosæ, f. 3 iss. M.
 Liquoris calcis,

Touch several times a day the superficial ulcerations of the mouth.

572. R. Potassii chloratis, 3 ijss
 Acidi muriatici diluti, f. 3 ss
 Mellis rosæ, f. 3 viij
 Aquæ, f. 3 iss. M.

A useful gargle in ulcerative and gangrenous stomatitis.

573. R. Tincturæ myrrhæ, f. 3 ij
 Acidi muriatici diluti, gtt. x
 Infusi rosæ,
 Decocti cinchonæ, āā f. 3 iij. M.

Use as an astringent and alterative gargle in inflammation of the mouth and throat.

574. R. Liquoris calcii chloridi, f. 3 iij
 Mellis rosæ, f. 3 vij
 Aquæ destillatæ, f. 3 v. M.

Useful in ulcerous stomatitis and in fetid breath.

J. COPELAND, M. D., LONDON.

This experienced practitioner recommends the following combinations :

575. R. Acidi muriatici diluti, f. 3 ss
 Tincturæ capsici, f. 3 iss
 Mellis, f. 3 v
 Infusi rosæ, f. 3 v. M.

To be used in stomatitis when the ulcers are slow in healing.

576. R. Magnesii carbonatis, 3 i
 Ferri carbonatis, 3 iss
 Potassii iodidi, 3 ij
 Tincturæ gentianæ compositæ,
 Syrupi sarsaparillæ compositi, āā f. 3 ijss. M.

Two teaspoonfuls a day in ulcerous stomatitis.

The French surgeons offer a variety of applications, which are the more useful, as it is unfortunately true that these ulcerations are frequently obstinate, and recur again and again, in spite of the most careful attention.

DR. N. GALLOIS, OF PARIS.

577. R. Sodii boratis, 3 ss
 Glycerini, f. 3 ss
 Mellis despumatæ, f. 3 iij. M.

Touch lightly with the solution, by means of a camel's-hair pencil, several times a day, the aphthous ulcerations of the mouth. In case of the insufficiency of this remedy, resort to the nitrate of silver.

578. R. *Aluminii et potassii sulphatis,* ℞i
Tincturæ opii camphoratæ, f. ʒ iss
Aquæ destillatæ, f. ʒ iv. M.
- A useful gargle in aphthous stomatitis.

Or:

579. R. *Tincturæ myrrhæ,* f. ʒ v
Tincturæ opii camphoratæ, f. ʒ iss
Mellis rosæ, f. ʒ j
Decocti hordei, f. ʒ v. M.
- A useful gargle and wash in aphthous inflammation of the mouth and throat.

CATARRHAL STOMATITIS.

Catarrhal stomatitis is met with most frequently, perhaps, as a catarrh of the tongue, or glossitis, particularly in the later stages of many exhaustive diseases and in some of the eruptive affections, as well as the result of scalding the tongue with food or beverages of too high degree of heat. Catarrhal inflammation of the gums, gingivitis, is met most frequently in cases of salivation or mercurial stomatitis. Whatever the cause or position of the catarrh, it manifests itself by the congested, red surface of the mucous membrane, its intense sensitiveness, readiness to bleed and raw feeling, with sometimes a not inconsiderable amount of swelling.

Perfect cleanliness of the mouth should be insisted upon, and if the condition persist it may be urged to heal by some stimulant application, as a weak solution of nitrate of silver. As a general outline in these forms it may be said that but mild and generally slightly astringent mouth-washes are to be given, and over the raw surface there may in addition be made occasionally applications of an antiseptic and protective nature.

As a mouth-wash in these conditions the editor has been accustomed to prescribe some such combination as the following:

580. R. *Potass. chloratis,* ʒij
Morphinæ muriatis, gr. j
Extracti rhois glabræ fluidi, f. ʒ ss
Listerine, f. ʒ j
Aquæ, q. s. ad f. ʒ iv. M.
- Sig.—Two teaspoonfuls in half glass of water. Gargle mouth every hour or more.

For fissures of the tongue, the following has been recommended in *Prager Med. Woch.*, 1892:

581. R. *Acidi carbolici,* f. ʒ ss
Tinct. iodi,
Glycerini, āā f. ʒ ijss. M.
- Sig.—Apply locally.

As a local application equal parts of borax and bismuth, with mucilage or honey, have been found advantageous, mopped over the catarrhal membrane on a soft bit of muslin or with a camel-hair brush. If the condition become chronic, solutions of nitrate of silver should be applied, followed by application of a salt solution to precipitate the excess of silver, although generally the salts of the saliva are sufficient for this purpose if the silver be carefully and not profusely applied.

LONEY (*Med. Record*, 1888,) has used naphthol as a mouth-wash in cases of stomatitis with excellent results, the unpleasant symptoms in a case of mercurial stomatitis having been almost immediately relieved by it.

PANAS (*Form. de la Faculté de Med. de Paris*) advises the following as a dentifrice in cases of mercurial stomatitis:

582. R.	Tannin,	gr. xxx
	Alum,	gr. xv
	Essence of mentha,	q. s.
	Powder of yellow quinquina,	
	Cachou powder,	aa 3 ss.

GANGRENOUS STOMATITIS (NOMA, CANCRUM ORIS).

(See also *Vol. I.*, p. 896.)

This is an exceedingly dangerous affection, usually occurring among children, and very often leading to a fatal termination. If it is recognized early enough, excision of the gangrenous part should be performed at once, and the surfaces of the wound well treated with antiseptics, perhaps also with cauterants. Commonly, however, the gangrene has gone too far for excision to be performed. Under these circumstances, all the sloughing matter should be removed as thoroughly as possible by the curette, and the surfaces of the resulting ulcer and its edges cauterized thoroughly by some of the many agents used at present, and then, if possible, dressed antiseptically; if this is not possible, at least iodoform may be dusted over the ulcer, or an ointment of iodoform may be rubbed over the surface, or some tenacious disinfectant, as terebene, or oil of eucalyptus, or balsam of Peru, may be applied. The gangrenous matter must, as much as possible, be kept from entering the air passages, lest a serious broncho-pneumonia be induced, and the patient should be kept on the stomach, with head lying over a pillow, so that the saliva will run out of the mouth.

Nourishing liquids and stimulants are usually urgently demanded,

and if they cannot be given by the mouth, should be administered as enemata. Iron, quinine, chlorate of potash and similar agents, should constitute the internal medication.

Mr. CHRISTOPHER HEATH, in the article upon diseases of the mouth and fauces, in the *International Encyclopedia of Surgery*, states that the slightest cases of stomatitis, whether of simple or gangrenous form, are best treated by attention to feeding and general hygiene; and locally, by the use of the solid nitrate of silver and constant application of carbolated glycerine, combined with the internal administration of chlorate of potassium, which seems almost a specific remedy in these cases. The more severe cases of gangrenous stomatitis should be treated with the application of strong nitric acid or the actual cautery, the patient being under the influence of chloroform.

PARASITIC STOMATITIS (THRUSH, SPROUE).

This is an affection almost entirely confined to children (see also Vol. I., p. 895), and is dependent upon the growth upon the mucous membrane of patches of a fungus, the *saccharomyces albicans*. Its treatment demands the immediate and entire removal of the small white patches of growth by mechanical means. A small cloth on the end of the finger, moistened with some alkaline solution, as of soda or chlorate of potash, is an excellent means of accomplishing this purpose, the alkaline solution aiding by dissolving the mucus, etc., by which the fungus is more closely adherent to the membrane. After this, touching the spots where the growth was situated with some slightly antiseptic solution will usually bring about the cure, as a solution of salicylate of soda or bismuth, or the application of a very small amount of calomel in powder, or dilute black wash, or some other of the many similar substances. Attention is to be paid the condition of nutrition and the state of the bowels, a mercurial laxative or purge being almost invariably indicated to correct the discolored, fœtid discharges.

NOTES ON REMEDIES.

Acidum Carbolicum, gtt. x-xv, is used as an antiseptic mouth wash and gargle, especially when the fetor is marked. In ulcerous stomatitis its concentrated solution in glycerine may be employed, applied by means of a camel's-hair brush, as a mild caustic.

Acidum Hydrochloricum Dilutum. A useful application in aphthous ulcerations and in mild cases of cancrum oris, is :

583. R. Acidi hydrochlorici diluti,
Mellis,

f. ʒi
f. ʒj.

M.

For local use.

Acidum Nitricum. In ulcerative and gangrenous stomatitis, this acid may be administered in small medicinal doses with conspicuous benefit. It is also used as a caustic in severe cases of cancrum oris.

Alumen. Aphthous ulcers, showing but little disposition to heal, or a tendency to spread, may be touched with dried alum a few times a day with the best effect. In simple ulcerative stomatitis it should be applied with the finger a number of times a day.

Argenti Nitras applied in substance to the ulcers is spoken of by Dr. SYMONDS as an efficient and most decisive remedy in the severe forms of ulcerations of the mouth; but since chlorate of potash, in four or six or more grain doses, has very properly attained the reputation of a specific, the nitrate of silver and muriatic acid are only resorted to when this fails. NIEMEYER says the application of nitrate of silver is very painful, but it acts surely and quickly.

Calx. DEWEES found great advantage from lime-water and milk, in doses of one-quarter or one-half a teaspoonful four or five times a day in infantile aphthæ when there were green, but not liquid stools. When the diarrhœa is profuse, prepared chalk is preferable, or the chalk mixture may be used.

Calx Chlorinata is recommended in scorbutic and other ulcerations of the mouth, as a gargle, made of chloride of lime, grains 120 to 240, water one pint, and honey one ounce. It corrects the fetor, and stimulates the parts to healthy action. It should be filtered before the honey is added. The *liquor sodæ chlorinate* is more convenient, and perhaps as useful.

Cascarilla is recommended even in the gangrenous thrush of children, by UNDERWOOD, as an aromatic bitter and tonic, for the relief of the atonic dyspepsia and debility from which the disorder often arises, and for the diarrhœa which often attends it. By its aromatic properties, it even renders Peruvian bark more agreeable to the stomach, and increases its powers.

Chlorinii Liquor, or chlorine gas, dissolved in half its volume of water, when largely diluted, is a tonic, stimulant and disinfectant; one part of the gas to eight parts of water is the average strength for a gargle or lotion, and has been used successfully in aphthæ, stomatitis and cancrum oris.

Cupri Sulphas is an excellent old-fashioned application in the severer forms of cancrum oris, aphthous ulceration and gangrenous affections of the mouth. SYMONDS used five grains finely powdered and thoroughly incorporated in half an ounce of honey. It has also often been applied in substance.

Cydonia Decoctio, or infusion of quince seeds (120 grains of the seed to one pint of boiling water), is a demulcent often used in aphthous affections and excoriations of the mouth. It is of but little value in itself, but is a good vehicle for other remedies.

Geranium Maculatum. The virtues of this plant depend upon the quantity of tannic and gallic acid contained in it. In aphthous affections, ulcerations of the mouth and throat, and relaxed states of the mucous membranes, it is often used as a wash or gargle, and a decoction in milk is often relied upon against the attendant bowel complaints. But it is better and more convenient to use small doses of tannin, both locally and internally.

Hydrargyri Chloridum Corrosivum, gr. i-ij to aquæ Oj, is recommended by NIEMEYER as a gargle. It should be used only by adult patients.

Magnesia is used as an antacid and absorbent in aphthæ and aphthous ulcerations, especially when acid diarrhœa is present.

Mel, or honey, was employed by HIPPOCRATES to clean foul ulcers, and by DIOSCORIDES in fistulous ulcers and wounds which were slow to heal. The Arabian writers dwell particularly on its advantages in affections of the mouth and fauces, and especially of the gums, particularly when mixed with vinegar. STILLÉ advises it in all cases in which a mild stimulant is required to change the character of ulcerated surfaces. In all ages it has been applied to the gums and buccal mucous membrane to remove aphthæ and slight pseudo-membranous deposits; but it is now usual to associate it with the borate of soda, or chlorate of potash, both of which materially increase its efficacy. The honey of roses and oxymel are said to be superior to honey alone. But in thrush or muguet, NIEMEYER says the domestic remedies, such as sprinkling the mouth with sugar, or painting it with borax and mel rosæ, are to be avoided, as they render the mouth sticky, and furnish new materials for decomposition and the growth of the fungus. VON MAACK advises it strongly in the aphthæ of chlorotic females, as, according to him, chlorosis depends upon an imperfect conversion of the products of digestion into sugar in the liver. (PETERS.)

Potassii Chloras is used in aphthous inflammation and ulceration of the tongue arising from anything which irritates the alimentary canal; also in diphtheria, cancrum oris, and gangrenous stomatitis. HUNT gives from 5 to 20 grains for children, and 30 to 60 grains for adults, daily, and uses a lotion of ʒj-ij in aq., Oj, as a wash; but these doses are too small in severe cases. It is the principal remedy in follicular stomatitis. Dr. HANNER was successful in seventy cases, with doses of 30 to 60 grains in twenty-four hours, in expediting the cure. It is particularly useful in ulcerative stomatitis, which commences by small ulcers on the inside of the cheeks or lips, or at the junction of the mucous

membrane of the gums with the cheeks, or with the gums themselves, separating them from the teeth. These ulcers may become large and covered with a pulaceous pseudo-membranous deposit, assuming an almost gangrenous appearance and exhaling a fetid smell. Drs. HUNT and HAWKINS first found it a prompt and certain remedy in doses of 20 to 60 grains a day. WEST regarded it as almost specific; MEIGS seldom found it necessary to resort to any other means, and authorities innumerable may be cited to the same effect. WOOD says it almost always operates like a charm in the follicular stomatitis of children. It acts both locally and constitutionally, for it can be detected in ten minutes after its administration in the urine, in which fluid it continues to be present for fifteen to forty-eight hours after each dose. RINGER says it is of signal service in various affections of the mouth, but particularly so in ulceration of the edges of the gums, which is generally limited to one side of the mouth, but then affects both the upper and lower jaws, and also that part of the tongue and cheeks coming in contact with the ulcerated gums. The influence of the chlorate is almost magical. In one or two days it cleans the dirty-looking ulceration, and heals it in a few days more. The chlorate of soda is more soluble than the chlorate of potash, and is at least equally serviceable.

Quinina proves highly serviceable in aphthous ulcerations when the patient is much debilitated; but the muriate tincture of iron may surpass it. Pulv. rhei and magnes. carb., āā gr. x to xv.; spts. ammon. aromat., mxx , and aq. cinnamomi, f. ℥ss , is useful in the aphthæ of children when given in small doses.

Rhus Glabra, the ordinary sumac, in the form of fluid extract, is a valuable astringent for use in astringent mouth-washes (F. 580).

Sodii Bicarbonas proves effectual when given with a few grains of rhubarb or chalk.

Sodii Biboras, or borax, is a popular and efficient remedy. WATSON gave mel boracis (ʒj to ʒj of honey) with syrup of poppies equal parts, in the ulceration which attends the advanced stages of phthisis, and in cracked tongue. STILLÉ says that one of the most extraordinary uses of borax is to remove the aphthæ which affect the mouth, fauces and anus of nursing children, apparently dependent upon an undue generation of acid in the primæ viæ. It should be given internally, in doses of 3 to 10 grains a day, and associated with magnesia in some aromatic water; while a weak solution, or the glycerole of borax, is applied frequently to the mouth. RINGER advises the glycerine of borax, 1 to 8, in aphthæ and the curdy exudation of thrush, or muguet.

Sodii Salicylas has also been recommended for the same purpose (F. 569).

Thymol is advised as an antiseptic to be incorporated in mouth-washes (F. 567, 568).

PHARYNGITIS (SORE THROAT).

J. SOLIS COHEN, M. D., OF PHILADELPHIA.

The treatment of the more usual varieties of sore throat is given as follows by this writer. (*Medical and Surgical Reporter*, October, 1874.)

For *simple inflammatory sore throat*, he would confine the patient to the bed or lounge, lightly covered so as to equalize the heat of the body. At the outset, an emetic is often of great service, especially if a meal has been recently taken. Mustard in water usually serves the purpose better than anything else. A gentle laxative should follow to remove the accumulations in the intestinal canal. The free use of demulcent drinks should be allowed, and bits of ice in the mouth, when cold is agreeable, will soothe the pain in the throat. Sponging the entire surface of the body with acidulated or alcoholized tepid water will allay the heat of the skin, if excessive. In more severe inflammatory cases, *tincture of aconite*, gtt. i-iiij, every one, two or three hours, will be advantageous.

Locally, sprays of dilute solutions of alum, carbolic acid, tannin, or sulphate of copper, relieve the uneasiness in a few hours. Compresses wrung out in cold or tepid water may be bound round the neck. When the uvula is elongated or œdematous, it should be punctured; excision is never necessary.

Phlegmonous sore throat, tonsillitis or quinsy, requires to be treated on antiphlogistic principles. An emetic of mustard, a saline laxative, one or two-drop doses of aconite, and the inhalation of steam from water impregnated with hops, chamomile flowers, the watery extract of opium, belladonna, or conium, or with compound tincture of benzoin, will be the earlier measures. Warm and moist external applications generally give great relief. Gargles are not often of value, because their proper use entails too great pain. Medicated sprays, however, are very efficient local applications. Rather strong aqueous solutions are preferable, as:

584. R. Aluminis,
Acidi tannici,
Zinci sulphatis,
Cupri sulphatis,
Aquæ,

āā

gr. xx-xxx
f. ℥j.

M.

For atomization.

The sulphate of copper seems the most generally efficient. The

topical application of the nitrate of silver can very rarely be done in a satisfactory manner.

Powders of alum, tannin, krameria, etc., in various dilutions, may be blown upon the parts with a tube.

If the tonsils are very much inflamed, great relief will follow scarification or incision, the bleeding being encouraged by mouthfuls of warm water.

The general strength must be conserved by concentrated food, easy of deglutition, by nutritive enemata, or by tonics and stimulants.

In *ulcerous sore throat*, the topical treatment is very important. When the disease is superficial, bromine, muriatic or nitric acid, the acid nitrate of mercury, or caustic potassa, may be employed to destroy the diseased tissue promptly, in the hope of exposing a healthy surface beneath. When this fails, or it is too dangerous to attempt, we can only palliate the symptoms by weak solutions of acids and astringents, and must depend on constitutional measures to arrest the progress. Sprays of chlorate of potassa, etc., are often agreeable, but have no direct influence on the disease. The most nutritious food, quinine and brandy, are imperatively demanded to sustain the system.

In *common membranous sore throat*, the treatment is usually the same as in the simple inflammatory form. In some individuals, however, there is a tendency to constant recurrence for weeks and months. With these, dilute acid, applied every day or two, seems to afford more satisfactory results locally than the ordinary astringent and caustic salts. The internal use of iron and cinchona as tonics, and sometimes of opium, not as a narcotic, but rather in small doses as a special stimulant, is also indicated.

LENNOX BROWNE, F. R. C. S., OF LONDON.

In his recent work, *The Throat and its Diseases* (London, 1878), this writer gives the following formulæ, which he has found specially efficacious:

585. R. Liquoris potassii permanganatis (B. Ph.), f. ℥j
 Aquæ destillatæ, ad f. ℥x. M.
 An antiseptic gargle; at a temperature of 90° to 95°, it may be used as a nasal douche.

586. R. Sodii bicarbonatis, gr. xxv
 Spiritus ammon. aromat., ℥xx
 Infusum gentianæ comp., ad f. ℥j. M.

Very valuable where there are dyspepsia and digestive disturbances in chronic pharyngeal inflammations; and a good alkaline vegetable tonic after recovery from quinsy, etc.

The following prescription for a local application in cases of acute pharyngitis is quoted in *Med. News*, 1890:

587. R.	Sodium borate, Sodium chlorate, Glycerine, Honey,	āā	gr. xxx ℥. ʒij ℥. ʒvj.	M.
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To be applied with a camel-hair brush.

SOLOMON SOLIS COHEN, OF PHILADELPHIA.

Dr. COHEN, brother of the physician above quoted (*Med. News*, 1890), states that recently in a number of cases of œdematous sore throat he found that great relief may be afforded by the inunction of a fifty per cent. ointment of ichthyol, externally, beneath the angle of the jaw and along the border of the sterno-mastoid muscle. Dr. COHEN'S cases were associated with the recent epidemic of influenza, but it is probable that the same agency can be as advantageously used in other forms of sore throat. He is disposed even to urge the topical application of ichthyol to the inflamed surface.

GOUGENHEIM (*Therap. Gazette*, 1890) highly recommends the employment of salol in the treatment of various forms of angina, having had his attention first attracted by its influence in cases of suppurative tonsillitis. From forty-five to sixty grains should be administered daily in three equal doses.

FELSENBERG (*Wiener Med. Blätter*, 1888) has found the fluid extract of *hydrastis canadensis* a very excellent local remedy in cases of pharyngitis, and advises that it be given a thorough trial, in cases either with or without enlargement of the tonsils.

Where the catarrhal tendency tends to prolong itself, without having as yet reached the stage where it merits the term chronic, a very excellent alterative general remedy is Fowler's solution, given in several drop doses and gradually increased as the patient can bear. The tendency to sore throat so often encountered may often be broken up by such a remedy.

PROFESSOR OPPOLZER, OF VIENNA.

Malignant sore throat.—This dangerous form of cynanche is usually acute in its course, lasting from ten to twenty days. Death may result from gangrene, from acute œdema of the glottis, pyæmia, the sudden bursting of the abscess into the respiratory passages, or its descent into the mediastinum. Prof. OPPOLZER treated the disease as follows:

As in all other inflammations, he was fond of beginning with cold moist applications to the part, substituting warm fomentations for these when the patient complained. He believed that this treatment not only favored resolution, but relieved the pain, and he was careful to apply the water as cold as possible, and change the cloths as soon as they became warm. If the symptoms did not abate, or on the contrary increased, he next applied leeches locally, and this, as a rule, with the happiest results; the disease either disappearing or taking a mild form. Severe pain was relieved by morphia.

When in spite of these various means, the swelling continued to increase, and alarming dyspnoea supervened, he lost no time in scarifying the swelling freely, and should this not be successful, in opening the trachea. "When the signs of pus are present," says OPPOLZER, "the surgeon should not hesitate for a moment to reach it with his bistoury. The internal treatment of the patient must be pursued on general principles, and wine, soups, quinine, and the mineral acids administered with discretion. Should the condition become chronic, mercury, iodine and blistering will be found to give the most satisfactory results."

MR. CHRISTOPHER HEATH (*loc. cit.*), in speaking of acute pharyngitis, remarks that it usually ends in resolution, but may occasionally lead to suppuration in the cellular tissue behind the gullet, thus causing a retro-pharyngeal abscess. The bulging forward of the posterior wall of the pharynx, interfering with deglutition and perhaps also with respiration, leads to a ready recognition of the condition. Puncture of the abscess wall should at once be performed in the median line, when, as a rule, the condition is relieved by the evacuation of the pus. Retro-pharyngeal abscesses may result also from vertebral disease.

PROF. B. FRANKEL, OF BERLIN.

Chronic Pharyngitis.—Prof. FRANKEL (*Therap. Monatsh.*, 1888), in speaking of the treatment of chronic pharyngitis, calls attention to the following general features of treatment. Each case is to be treated upon its own merits, since, perhaps, besides the local treatment, the most important feature in the cure of the case is the treatment of the cause. Moreover, hypertrophic and atrophic cases of chronic pharyngeal catarrh cannot be benefitted by the same local measures. Obstructions in the nose, causing mouth breathing, must thus be sought for and treated, and disorders of the mouth and

teeth must be corrected. The conditions of life, the surroundings of home and occupation, the dirt, the habits, should all be examined to remove faults, especially such as might by irritation or malnutrition have a pronounced influence upon the affection. The clothing and climate should also be inquired into.

Among local measures, the use of the actual cautery, or galvanocautery, in the form of small-pointed cauterizing needles, has been practised with much success, especially in the nodular or granular form of pharyngitis so often met with. KAFEMANN (*Deut. Med. Zeitung*, 1889,) has recently advised a sort of combination between electro-cauterization and electrolysis. He uses small insulated wires attached to the positive and the negative pole respectively; each is soldered to a metal plate bearing a number of gold points. These are applied to the membrane, and one sees the different effects in the dark, dry and hard eschar from the positive wire and the moist, soft white one from the negative. In the tissue between these eschars, there is some degree of electrolytic change leading to its break-down. The method is less painful and less prolonged than by the usual mode of cauterization of the lymphadenoid nodules in this form of chronic sore throat.

As a local application to the mucous membrane in chronic sore throat, VIDAL prescribes the following as a sedative topical remedy:

588. R.	Borate of sodium,	3ijss	
	Laurel-cherry water,	f. 3vj	
	Glycerine,	f. 3iv.	M.

Sig.—To be painted on membrane of pharynx.

Tincture of capsicum has been advised by BUCK (*London Lancet*, 1890) in cases of relaxed sore throat, simply painted over the affected membrane with a brush. The use of gargles of astringent and stimulant nature has been practised in these cases with varying success, depending on the judgment of the physician as to the character of the case dealt with. Nitrate of silver penciling is used with much benefit in cases of granular sore throat; weak salt solutions are of undoubted value in cases requiring very mild stimulation. The various agents which have, however, been suggested in these cases are legion; they may be classed in a general way into those used for the destruction of excessive tissue, as the escharotics; the simple stimulants as the weak solutions of nitrate of silver or chloride of iron; sedatives, as the opiate preparations, laurel-cherry water, carbolic acid, cocaine; emollients, as glycerine and the mucic-

luginous preparations; or astringents, as alum, rhus glabra, tannin or hydrastis.

In cases where there is a tendency to the constant recurrence of sore throat, CAPART (*Four. de Med. de Paris*, 1891) advises the following as a useful prophylactic means used as a gargle:

589. R. Crystallized carbolic acid, 3j
 Alcohol, f. 3v
 Essence of peppermint, gtt. xv. M.
 Ten drops of this in a half glassful of water as a gargle night and morning.

Or,

590. R. Salol, 3j
 Alcohol, f. 3v
 Essence of peppermint, gtt. v. M.
 A teaspoonful in a tumbler of water three or four times a day as a gargle.

A gargle should be used in small quantities and frequently. One or two teaspoonfuls is abundant, and it should be repeated hourly or every half hour.

Sir J. MURRAY recommends the drawing of the gargle through the nostrils. It thus passes along the posterior nares and reaches the pharynx, touching in its course the whole mucous surface. Conditions such as injected, relaxed or turgid states of the coats and vessels of the posterior passages, which cannot be reached by gargles applied in the usual manner, are removed by those drawn through the nostrils.

Gargles may be made either astringent, stimulant or sedative.

They are contra-indicated when active inflammation of the throat exists. They are purely local in their action, and are powerfully employed in chronic cases of relaxed or ulcerated tonsils and fauces.

The following selected recipes will be found of service:

PROFESSOR JOSEPH PANCOAST, M. D., PHILADELPHIA.

591. R. Cinchonæ rubræ, 3ss
 Aquæ bullientis, Oss. M.

Strain and add:

- R. Tincturæ myrrhæ,
 Tincturæ kramerizæ,
 Mellis despumati, āā f. 3j
 Acidi muriatici diluti, gtt. xv. M.

Use as a gargle in cases of chronic sore throat.

DR. N. GALLOIS, PARIS.

592. R. *Aluminii et potassii sulphatis*, $\overline{3}i$
Decocti quercûs albæ, $f. \overline{3}iv$
Vini albi, $f. \overline{3}ijss.$ M.

This is a useful gargle in chronic inflammatory affections of the throat, attended with relaxation of the uvula.

593. R. *Sodii boratis*, $\overline{3}i$
Extracti opii, $\overline{3}j$
Mellis, $f. \overline{3}j$
Infusi salviæ, $f. \overline{3}vj.$ M.

Employ as a gargle in inflammatory sore throat.

594. R. *Acidi tannici*, $\overline{3}ss$
Mellis rosæ, $f. \overline{3}iss$
Aquæ rosæ, $f. \overline{3}ivss.$ M.

Employ as a gargle in chronic sore throat.

Or employ :

595. R. *Tincturæ myrrhæ*, $f. \overline{3}ij$
Mellis despumati, $f. \overline{3}j$
Infusi rosæ, $f. \overline{3}iv.$ M.

Used as a gargle.

DR. RENAULDIN, FRANCE.

596. R. *Ammonii chloridi*, $\overline{3}j$
Spiritus camphoræ, $f. \overline{3}ss$
Oxymellis, $f. \overline{3}j$
Decocti cinchonæ rubræ, $f. \overline{3}vij.$ M.

Employ as a gargle in a gangrenous sore throat.

597. R. *Acidi muriatici*, $gtt. xx-xxx$
Mellis rosæ, $f. \overline{3}j$
Decocti cinchonæ rubræ, $f. \overline{3}v.$ M.

Employ as a gargle in gangrenous sore throat.

Another useful local application is the following :

J. M. DA COSTA, M. D., PHILADELPHIA.

598. R. *Cupri sulphatis*, $\overline{3}j$
Aquæ, $f. \overline{3}j.$ M.

Apply with a brush three times a week in cases of follicular pharyngitis.

WHITLA prescribes the following for sore throat :

599. R. *Cocainæ muriatis*, $gr. viij$
Acidi carbolici, $f. \overline{3}j$
Glycerini, $f. \overline{3}iv$
Aquæ rosæ, $ad f. \overline{3}xij.$ M.

Sig.—To be diluted with an equal amount of water and used alternately as a spray and as a gargle.

For NOTES ON REMEDIES, see under section, TONSILLAR HYPERTROPHY.

TONSILLITIS (QUINSY, CYNANCHE).

JAMES E. GARRETSON, M. D., D. D. S.

In simple tonsillitis, the following may be employed :

600. R.	Plumbi acetatis, Tincturæ opii, Aquæ,	3j f. $\frac{3}{4}$ j f. $\frac{3}{4}$ xij.	M.
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For a gargle.

In the frequent cases in which the congestion is associated with passivity, resolution will be often quickly effected by the following :

601. R.	Sodii bicarbonatis, Potassii chloratis, Tincturæ capsici, Tincturæ myrrhæ, Aquæ,	3iij 3j f. $\frac{3}{4}$ ij f. $\frac{3}{4}$ j f. $\frac{3}{4}$ viij.	M.
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For a gargle.

Another practice which the author has found happily applicable to these latter conditions, consists in first brushing the parts with a solution of nitrate of silver, gr. iv to aquæ f. $\frac{3}{4}$ j, and afterward using the following :

602. R.	Tincturæ iodinii compositæ, Acidi carbonici fluidi, Glycerini, Aquæ,	gtt. xl gtt. vj f. $\frac{3}{4}$ j f. $\frac{3}{4}$ vij.	M.
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For a gargle.

Small particles of ice may be taken into the mouth and allowed to dissolve. A pleasant application is a gargle of flaxseed tea in which chlorate of potash has been dissolved. It should be remembered that sympathetic inflammation of the tonsils is not infrequent.

Free scarification has occasionally been resorted to with the best results. In the vigorous, leeches applied between the angle of the jaw and the sterno-cleido-mastoideus muscle, and blisters on the nape of the neck, will be found of the greatest service. Prolonged hot foot-baths constitute a most satisfactory and reliable means of relief. If general fever is present, it is a good practice to place the patient over a basin of steaming water, and with the form enveloped up to the very mouth in blankets, to secure diaphoresis by plentiful exhibition of the spiritus mindereri—a tablespoonful every ten minutes until the desired result is produced. A very useful combination, when the fever runs high and the system is irritable, is :

seen in the initial stage—that of chill, fever and accelerated pulse. Even when it has existed for forty-eight hours it has been cut short.

The treatment, which is simple, is as follows: a brisk saline cathartic is immediately ordered, and the following mixture is applied to the tonsil with a camel's-hair pencil, once in two or three hours:

605.	R.	Tinct. iodinii,		
		Tinct. ferri chloridi,	āā	f. 3 ij
		Glycerinæ,		f. 3 ss.
				M.

Even in persons subject to periodical attacks, it has been eminently successful.

SURGEON HEHIR, OF BRITISH INDIAN MEDICAL SERVICE.

This gentleman (*Indian Med. Gaz.*, 1890; *Med. News*, 1891,) recommends in cases of acute tonsillitis the administration of pilocarpine to relieve the distress caused by the accumulation of tenacious pharyngeal mucus. One-eighth of a grain in a teaspoonful of water every two hours until slight salivation is produced is sufficient. Locally, he uses repeated poultices and constant steaming, by means of boiling water near the patient's head. Internally, tartar emetic in doses of gr. $\frac{1}{16}$ to adults every two hours has given him more good results than any other drug, not excepting sodium salicylate. If any depression follows the use of the tartar emetic, which is unusual, ammonium carbonate or strophanthus may be given. Of stimulants, he thinks port wine the best, and believes it has some local beneficial action upon the inflamed tonsils. Guaiac mixture is sometimes very useful in relieving the shooting pain often complained of during the act of swallowing. It is usually good practice to begin treatment by the administration of a mercurial followed by a saline purge. Dr. HEHIR has repeatedly seen marked relief follow a simple puncture or small incision of the tonsil, and this should be done whenever the gland is greatly swollen. It is much preferable to the use of leeches in the submaxillary region. He believes that strong antiseptic gargles are of very little use during the acute stage, but that tepid antiseptic gargles may be of use.

The following gargle has been recommended in tonsillitis (*Gaz. Hebdom. des Sci. Méd.*, 1890):

606.	R.	Iodine,		gr. iss
		Iodide of potassium,		
		Tannin,	āā	gr. xv xlv
		Water,		f. 3 ij.
				M.

Use as a gargle three times a day.

DR. HABERKORN, OF GERMANY.

As quoted in the *Medical News*, 1890, this authority (*Centrallbl. f. Chir.*, 1889) recommends salicylic acid in the treatment of acute tonsillitis. The best and most simple mode is to apply the powdered acid directly by means of a rather large camel-hair pencil, which may be slightly moistened. In this way it is brought directly in contact with the diseased surface, and but few applications are necessary.

When the tonsils are covered with a thick mucous or diphtheritic coating, it should be removed before the acid is applied, for which purpose the following liquid, also to be applied with a brush, answers very well:

607. R.	Pepsin,	gr. xxx	
	Dilute muriatic acid,	f. 3j	
	Water,	f. 3v	
	Glycerine,	f. 3iv.	M.

When the coating has been digested by this solution the acid should be dusted over the tonsils.

Besides the local use, it is advisable to administer salicylic acid also internally at the same time, as in the following prescription:

608. R.	Salicylic acid,	gr. xxx	
	Mucilage of acacia,	f. 3j	
	Syrup,	f. 3ss	
	Water,	f. 3ivss.	M.

Dose.—A tablespoonful every two hours.

In the more chronic forms it is well to pencil the tonsils with:

609. R.	Tannin,	gr. xv	
	Tincture of iodine,	gtt. ij	
	Glycerine,	f. 3v	
	Water,	f. 3j.	M.

When quinsy threatens it may be promptly dispersed by painting the following over the tonsils several times daily:

610. R.	Tannin,	gr. xv	
	Tincture of iodine,	gtt. iij	
	Carbolic acid,	f. 3ss	
	Glycerine,	f. 3v	
	Water,	f. 3ijss.	M.

G. F. BOUCSEIN, OF BALTIMORE.

Dr. BOUCSEIN (*Amer. Jour. Med. Sci.*, 1889) uses as local treatment poultices to the outside of the throat, inhalations of steam,

and incision where there is an abscess. As constitutional remedies he mentions the tincture of aconite root, ammoniated tincture of guaiac, potassium chlorate with tincture of iron, and salicylate of sodium. He quotes BOISLINIERE (*Med. News*, 1889) in the following mixture, from which the latter reports remarkable results :

611. R.	Sodii benzoatis,	3j-iv	
	Glycerine,		
	Elix. calisayæ corticis,	āā	f. 3j. M.

Sig.—A teaspoonful every hour or every two hours.

Dr. BOUCSEIN is, however, very skeptical as to the curative or abortive power of any remedy in acute tonsillitis, having had cases without any medication than the local measures above mentioned recover fully by the fourth day. He looks on this disease as a specific one, which runs a course of about three and a half days in spite of whatever is done.

DR. AMES H. PEABODY, OF NEBRASKA.

This writer states that in tonsillitis of all grades, he has unvarying success from the use of *oleum terbinthinæ*. (*Medical and Surgical Reporter*, September 9th, 1876.) He commences the treatment of all cases, whether of diphtheritic or ordinary tonsillitis, by seeing that the alimentary canal is properly cleaned by the administration of Epsom or Rochelle salts, where they can be taken; if not, the granulated citrate of magnesia is palatable, and seldom objected to. He also immediately puts the patient on the following prescription :

612. R.	Ol. terbinthinæ,	3ij	
	Pulveris potassii chlo.,	3ij	
	Pulveris sacch. alb.,	ss	
	Pulveris acaciæ,	ss	
	. Aquæ,	v.	M.

Shake up well, and take a large teaspoonful every hour or two, until the inflammatory symptoms begin to subside, then less often.

Always direct it to be rinsed well around in the mouth before swallowing, so that every possible portion of the inflamed mucous membrane, from the lips to the stomach, may be touched with the turpentine and chlorate of potash.

The inhalation of steam from hops and vinegar is allowed, if the patient desire, as it is soothing to the inflamed mucous membrane.

If this alone does not relieve the patient in twenty-four hours, or less in severe cases, he adds to the emulsion forty-eight grains of sulphate of quinine, so that we get the local effect, as well as the

constitutional, of this potent drug. This is taken in the same way every two or three hours, alternating it with twenty drops of *tinctura ferri chloridi*, if desired. He has yet to see the first fatal case where this treatment was carried out from the outset of the disease.

MR. LESLIE THAIN, ENGLAND.

In inflammation of the fauces, (tonsils and pharynx,) this writer says (*Lancet*, September, 1876,) he has found the usual gargles of little value, and depends upon *carbolic acid*. His plan is to apply hot fomentations, with a few drops of turpentine externally to the throat, and then to wrap up the whole neck in flannel. Constant heat, moisture and mild counter-irritation, are to be kept up by frequent changing of these applications. The feet must be at once put into a hot mustard-bath, and if the patient will then get into bed between the blankets, so much the better. Gargles as hot as can be borne must be begun as soon as possible, and the most useful is a watery solution of carbolic acid (1:40). This has a soothing effect on the inflamed mucous membrane, besides sweetening the foul breath. If gargling cannot be performed, *carbolic acid* in glycerine (1:20 or 1:30) should be frequently applied by means of a feather to the parts. A brisk saline aperient may be advisable.

By following this plan of treatment, Mr. THAIN declares that the inflammation subsides in a few hours, never running on to suppuration, and then a simple alum gargle may be serviceable. The advantages of the plan are: 1. The carbolic acid relieves pain, checks hawking and tickling of the throat, and sweetens the foul breath. 2. The glycerine keeps moist the dry, irritated mucous membrane. 3. The hot gargle, the fomentations, and the foot-bath rapidly relieve the active congestion.

Dr. LENNOX BROWNE in cases of tonsillitis with a rheumatic history advises the following:

613. R. Sodii salicylatis,
Syrupi,
Aque,

gr. xv-xxv
f. $\frac{3}{4}$ j
f. $\frac{3}{4}$ j.

M.

For one dose, every hour, until the pain is relieved in tonsillitis, with pyrexia and rheumatic symptoms.

WRIGHT (*Amer. Jour. Med. Sci.*, 1890,) urges the use of salol in cases of acute tonsillitis, claiming that it quiets the pain and dysphagia promptly, lowers the temperature and cuts short the disease. It should be given in amounts of at least gr. lx in a day to adults to accomplish these results.

DR. HANFIELD JONES, OF LONDON.

In a review of the therapeutics of this disease (*Lancet*, January, 1871,) this writer states that *belladonna* is more appropriate where the tonsils are acutely inflamed than in those cases where there is general inflammation of the fauces, without special affection of the tonsils. In the latter case he thinks that either *iodide of potassium* or the solution of *sesqui-chloride of iron*, according to the quality and stage of the inflammation, is preferable; and though he often combines with the belladonna a little quinine or sulphate of magnesia, or an emetic, according to the indications of the case, and sometimes the use of steam, or a blister applied externally to the neck, he feels justified in maintaining that the success which he has obtained in the treatment of these cases is not to be attributed so much to these auxiliary measures as to the belladonna. He always gives directions that the administration of the remedy shall be slackened as soon as the throat symptoms are materially relieved, or on the production of any toxic effect.

Dr. JONES does not pretend to decide whether the remedy operates by producing constriction of the arteries, or by a direct sedative effect on the elements of the affected tissue; but he proposes that, if further observation should confirm its value in acute tonsillitis, the patient should be saved the regularly recurring pain of swallowing doses of medicine, by reducing the preparation of the drug to the smallest possible bulk, or by injecting it subcutaneously in the form of atropine.

TONSILLAR HYPERTROPHY.

JAMES E. GARRETSON, M. D., D. D. S.

Tonsillar hypertrophy is rather a systemic indication than a local disease. More attention will be found required to diet, clothing, exercise, and general mode of life, than to medication.

Among medicines said to possess specific power on enlarged tonsils, *sulphate of potassium* holds the most prominent position. It is to be given for four or six weeks, in doses of gr. v-xv. It is usual to combine it with rhubarb and some of the aromatics to insure laxity of the bowels. It is, without doubt, efficient in many cases.

Where the arthritic dyscrasia can be detected, *colchicum* has been highly commended for enlarged tonsils. It should be taken internally and applied externally as a liniment, in combination with *linimentum saponis*.

Another frequently successful remedy, particularly applicable where the condition is coincident with scarlatina, is *acetate of zinc*.

614. R.	Zinci acetatis, Glycerini, Aquæ,	℥ij f. $\frac{3}{4}$ ss f. $\frac{3}{4}$ vij.	M.
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A teaspoonful every four hours or oftener.

The local treatment is either by the use of alteratives, by cauterization, or by amputation. As an alterative, the *iodide of zinc* holds, perhaps, the most prominent position. It is used in solution, gr. x-xxx, applied with a brush two or three times in the twenty-four hours; or, as the treatment advances, it may be applied pure, as it deliquesces when exposed to the air.

The second mode of treatment is by cauterization, as recommended by Dr. RUPPNER. (See below.) Dr. RUMBOLD, of St. Louis, claims to have treated successfully a number of cases of enlarged tonsils by injecting the glands, by means of a hypodermic syringe, with this solution of iodine:

615. R.	Iodinii, Potassii iodidi, Aquæ,	gr. ij ℥ij f. $\frac{3}{4}$ j.	M.
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Generally, a slight inflammation followed the injection, but it soon subsided. From twelve to seventeen injections—ordinarily two a week—were sufficient to reduce the gland to its normal condition.

Finally, amputation may be resorted to.

Professor JAMES SYME recommends that in removing the tonsil, it should be seized with a hook, drawn forward, and excised with the scalpel. This method, recommended by CELSUS, is, in Mr. SYME'S opinion, less liable to be followed by hemorrhage than any of the plans later devised.

In removing the tonsil with the guillotine, it is important to remember that the organs are situated obliquely, like the pillars of the soft palate; more pressure should be made upon the lower than on the upper border of the instrument, and the tonsil will then be readily seized. It is better not to attempt to remove the whole of the organ, for after removing a portion, the rest will atrophy, and removal of

the whole is liable to be followed by dangerous and very obstinate hemorrhage. The hemorrhage may be due to the existence of inflammation at the time of operating, which inflammation also has a tendency to make the substance of the organ friable, so that it will have to be removed in small pieces; hence it is always advisable to defer the operation until the inflammatory stage has passed.

All the usual methods of checking the bleeding are unreliable, with the exception of direct compression made by the finger of the surgeon. The finger should be introduced into the mouth and applied directly to the wound, while counter-pressure is made from in front. This position must be maintained for several minutes, notwithstanding the attacks of suffocation, the efforts at vomiting, and the cough which the method excites. The hemorrhage is generally arrested at the end of two minutes.

616. R.	Acidi tannici, Acidi gallici, Aquæ,	3vj 3ij ad f. 3j.	M.
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Very useful as a styptic gargle, after excisions of the tonsils or ablation of the uvula.

ANTOINE RUPPNER, M. D., OF NEW YORK.

This practitioner prefers in chronic tonsillar enlargement to use the *London* paste, recommended by Dr. MORRELL MACKENZIE. He states that it should be prepared in the following manner:

A quantity of equal parts of finely-pulverized and mixed *caustic soda* and *unslacked lime* is kept on hand. When an application is to be made to the tonsils, a little of the powder is put into a small porcelain cup, and a few drops of absolute alcohol, which is kept near at hand, are added; the two are carefully mixed with a glass rod, when the paste is ready for use. Care must, however, be taken that it be of the proper consistency. If too thin, it is apt to find its way to parts which ought not to be touched; if too thick or lumpy, the paste will not readily stick, and little pieces might be swallowed. To apply the paste, a glass rod of sufficient length ought to be used. One end of it, which must be smooth and slightly funnel-shaped, is dropped into the paste, and a greater or lesser portion of the surface touched, as occasion may require.

To apply the paste the patient should be placed in the position for laryngoscopy. The tongue is then to be depressed with the spatula, and the paste applied to the enlarged surface for two or three seconds. The action of the escharotic upon the tonsil is rapid. The mucous membrane almost instantly assumes a deep flesh

color, and presently a dark, blackish spot is seen, streaked with blood. The following day the tonsil is covered with a whitish-yellow eschar.

The inconsiderable amount of suffering produced by this application is noticeable. Children hardly pay any attention to the pain, or make light of it. At the longest, the discomfort lasts only about two or three minutes. Subsequent applications are accompanied with less, if any pain at all.

The operation is again to be repeated in two or three days. The number of applications will depend upon the nature of the case.

DR. J. H. STUCKY, OF LOUISVILLE, KY.

At the eighth annual meeting of the American Rhinological Association, held in Louisville, in 1890, Dr. STUCKY, among other remarks in a paper on tonsillar hypertrophy, made these statements as to the treatment of enlarged tonsils.

In cases of enlargement due to an acute catarrhal inflammation, applications of the mild astringents are best suited. The rheumatic nature of many attacks of acute tonsillitis is generally accepted, and upon this idea is explained the fact that at the commencement of the attack salicylate of sodium in ten-grain doses every hour or two until a drachm has been taken, will often cut short an attack. The effervescent salicylate of lithium has proved itself of equal value in Dr. STUCKY'S hands, and possesses the advantage of not causing the nausea often resulting from the employment of the sodium salt.

For simple acute hypertrophy the treatment should be constitutional; locally astringents may be used. When the tonsils are soft, the galvano-cautery is very effective, a few deep cauterizations being made every week for a time, and the writer states that he has introduced the ordinary galvanic needle to its full length into the tonsil at distances of one-eighth of an inch apart with excellent results. In removing the tonsil the galvano-cautery snare is an excellent addition to the surgeon's armamentarium, reducing the danger to a minimum. If the hypertrophy is dense, fibrous and hard, tonsillectomy should be performed; and the writer commends the gallo-tannic gargle of MORELL MACKENZIE (similar to F. 616) as a styptic means.

CULLEX (*Cincinnati Med. Jour.*, 1891,) advises in the use of the galvano-cautery for the removal of a hypertrophied tonsil or for the purpose of diminishing its size by cicatrization from puncture, that an application of cocaine and carbolic acid be first used as a

local anæsthetic. The galvanic needle is then inserted at a red heat into one, two or three adjacent lacunæ, and the operation repeated in the course of a week. After the operation, a soothing antiseptic spray is used; and, if necessary, tannic and gallic acid gargles as styptics. Or it is possible, by means of the same instrument, to cut or burn out the tonsil, as though dissecting it out. The same previous and subsequent care should be maintained as in the milder operation of puncture.

ARTHUR TREHERNE NORTON, F. R. C. S.*

When the tonsils of children are enlarged, it is necessary to treat them constitutionally as well as locally. The parts should be painted with a solution of equal parts of tincture of iodine and water, or with the pure tincture, ceasing the application for a day or two at a time, rather than allowing the surface to become abraded by the irritant action of the drug. The child should be taught to gargle, and the application then exchanged for a gargle of tannic acid (gr. viij to f. 5j), or of tincture of iodine (5ss to f. 5j). If the child is strumous, iodide of iron and cod-liver oil are called for; and if there are any signs of inherited syphilis, iodide of potassium, gr. ij three times a day, accompanied by small and repeated doses of gray powder, will be called for. If, after two months of this treatment, there is no appreciable result, the condition may be looked upon as incurable, and a resort to an operation is the only alternative.

In people over twenty years of age, by far the majority of cases of hypertrophied tonsils are due to *syphilis*. The tonsils are purple or dark blue, rather soft, not painful, very liable to ulcerate. The pillars of the fauces are thick and fleshy. Mr. NORTON usually prescribes:

617. R.	Potassii iodidi, Liq. hydrarg. perchloridi, Decocti cinchonæ.	gr. v f. 3iss f. 3j.	M.
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At a dose, thrice daily.

After giving this for two or three weeks, he changes it to tinctura ferri chloridi, or to the citrate of iron and quinine, alternating the two classes of remedies from time to time. If there are the slightest symptoms of salivation, he ceases the mercury at once. As a gargle he gives:

* *Affections of the Throat and Larynx*. London, 1875.

618. R. Hydrargyri perchloridi, gr. ij
 Aquæ, ʒ viij. M.
 Use night and morning, or thrice daily.

This is changed from time to time for:

619. R. Zinci chloridi, gr. xvj
 Aquæ, ʒ viij. M.

Or he applies locally a solution of nitrate of silver, gr. iij to f. ʒj. This treatment is in the highest degree satisfactory. In this form of enlargement the tonsils should never be removed.

Parenchymatous injections of *ergotin* have been used with moderate success.

Fel bovinum (ox-gall), applied locally, is said to have a remarkably prompt effect in dissipating tonsillar enlargements.

NOTES ON REMEDIES.

Acid Carbolica is an excellent stimulant and sedative for use in local applications to sore throats.

Aconitum. Dr. SYDNEY RINGER says the visible effects of aconite on inflamed tonsils, etc., are conspicuous. It should be given at the very beginning of the disease. Half a drop or a drop of the tincture in a teaspoonful of water, every ten minutes or a quarter of an hour for two hours, and afterwards hourly.

Alumen is a popular ingredient in gargles. (F. 584.)

Ammonii Hypophosphis.

620. R. Ammonii hypophosphitis, ʒ j
 Syrupi toluani, f. ʒ viij
 Glycerini, *
 Aquæ, āā f. ʒ iv. M.

To the water and glycerine add the hypophosphite of ammonium, and agitate until dissolved. Then add the syrup tolu and one ounce of freshly powdered *cubebs*, and agitate well before each dose. Ordinary dose, one teaspoonful every one or two hours.

A writer in the *Pacific Medical and Surgical Journal* says: "We have found this preparation to be a very superior remedy for coughs, colds and hoarseness. Its use in small and oft-repeated doses is very beneficial for preachers, singers, and other public speakers, to clear the voice, taken for several hours before they appear in public."

Antimonii et Potassii Tartras, in doses of gr. $\frac{1}{8}$ – $\frac{1}{2}$ hourly, is valuable to combat the inflammatory stage of acute tonsillitis.

Arsenicum has been recommended in the sloughing of sore throat.

Belladonna. Tincture of belladonna, gtt. ij-xv every two hours until the patient is relieved, or until its constitutional signs are produced, has been highly commended. It may also be used externally to the throat as a lotion. (See page 427.)

Capsicum is an excellent gargle in the early stages of inflamed sore throat, and also in relaxed throat.

621. R.	Tincturæ capsici,	f. 3j	
	Aquæ,	Oss.	M.

For a gargle.

The officinal infusion (3ss of the powder to a pint of water) is also used as a gargle.

Catechu. A small piece of gum catechu placed in the mouth and allowed slowly to dissolve, the saliva being swallowed, is a convenient and agreeable remedy in relaxed uvula, irritable fauces and enlarged tonsils.

Cauterants have been used with advantage in the granular forms of pharyngitis. The best form is the electro-cautery with minute point.

Cimicifuga, gtt. v-x of the tincture, in the early stages of sore throat, is said to act well. Also where the mucous membrane of the pharynx becomes dry and spotted over with inspissated mucus. (RINGER).

Cinchona. Peruvian bark and its alkaloids exert a specific effect when locally applied to inflamed mucous membranes. They are invaluable additions to gargles. (F. 591.) An attack of acute tonsillitis may sometimes be aborted by a full dose of quinine (gr. x-xv) given at the outset. Dr. GEORGE JOHNSON, of London, recommends the following gargle :

622. R.	Quininæ sulphatis,	gr. xviii	
	Acidi sulphurici diluti,	℥ xliij	
	Aquæ,	f. 3vj.	M.

For a gargle.

Creosotum is an excellent ingredient in prescriptions for malignant sore throat.

Cubeba. This has received very high praise from MM. TRIDEAU, BERGERON, TROUSSEAU, and other French surgeons, and by Dr. BEVERLY ROBINSON, of New York, as a remedy in simple membranous and in diphtheritic sore throat. The mixture employed by the latter most frequently is the following :

623. R.	Pulv. cubebæ (freshly powdered),	3j.	
	Syrupi aurantii,		
	Aq. menth. pip.,	āā f. 3 iss.	M.

To be taken in twenty-four hours, or a dessertspoonful every two hours.

This is the usual adult dose. From a fourth to a half of the above

quantity may be given with propriety in the same lapse of time to a child three years of age. He lays great stress upon the importance of making use of *the freshly-ground powder*. No other preparation of cubeb is at all so efficacious. Of its action he says: Cubeb tends to arrest mucous secretions, and, on this account, membranous exudation does not re-form as rapidly or abundantly. False membranes already formed lose their intimate adherence with the original site of growth, and are resorbed, or fall into the buccal cavity and are expectorated. They also shrivel to a limited degree, and are less covered with liquid secretions. When the pseudo-deposit re-appears in the spot from which it has once dropped, or been resorbed, it differs considerably from the primitive one. It is changed in color, configuration, and other properties. It is white, or of a white, slightly bluish tinge, less thick and prominent, less adherent, and covers a more limited area. It has lost its disposition to extend to new surfaces, whether it be toward the larynx or toward the nasal cavities. The above effects manifest themselves usually in about forty-eight hours from the time the exhibition of cubeb is commenced. Sometimes they are evident before the expiration of this period; occasionally three or four days may elapse before apparent results are obtained.

Glycerinum, especially in combination with tannin, is frequently of much use in the later stages of sore throat, applied with a pencil, or with water as a gargle.

Guaiacum is one of the most specific and important remedies in inflamed sore throat. The following is a most satisfactory formula:

624. R.	Tincturæ guaiaci ammoniatæ,		
	Liquoris potassæ,	āā	f. ʒiij
	Tincturæ opii,		f. ʒij
	Aquam cinnamomi,		ad f. ʒviij.
			M.

For a gargle. A teaspoonful every hour.

Mr. JOSEPH BELL strongly recommends the internal administration of powdered guaiacum—half a drachm suspended by means of mucilage, in a draught, every six hours, in large doses—as being almost specific in the cure of cynanche tonsillaris. Dr. R. J. FRITZINGER, of Pennsylvania, has found the following an almost certain preventive of ulceration in tonsillitis:

625. R.	Potassii chloratis,	ʒj	
	Spiritus ætheris nitrosi,	f. ʒss	
	Tincturæ guaiaci,	f. ʒiss.	M.

A teaspoonful every three hours in sweetened water. (*Medical and Surgical Reporter*, November, 1874.)

Hydrargyrum. Dr. RINGER says that in acute tonsillitis, when the tonsils almost meet, gr. $\frac{1}{3}$ of hydrarg. powder, every hour, is beneficial, even if an abscess has formed.

Hydrastis Canadensis in the form of the fluid extract is advised as a topical application in cases of pharyngitis.

Ice, constantly sucked, a small piece being kept in the mouth, is a valued alleviant.

Ichthyol is used as a counter-irritant by Dr. S. SOLIS-COHEN, applied to the angle of the jaw and along the sterno-mastoid muscle in cases of sore throat.

Iodinium. The tincture of iodine is occasionally applied to the sores left by faucial inflammation and as an absorbent.

Potassii Chloras is a frequent ingredient in gargles for the throat. (F. 601.) It may be combined with carbolic acid :

626. R.	Potassii chloratis, Acidi carbolicī, Aquæ cinnamomi,	3ij f. 3ss f. 3viiij.	M.
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For a lotion or gargle.

Potassii Nitras was formerly a common application to inflamed throat, but is now largely supplanted by the chlorate.

Quininæ Sulphas. See Cinchona.

Rhus Glabra. Dr. H. C. WOOD, JR., states that the most generally efficient gargle in ordinary sore throat he has ever met with is the following :

627. R.	Pulv. rhois glabræ, Potassii chloratis, Aquæ bullientis,	3j 3ss Oj.	M.
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Simmer in an earthen vessel, occasionally stirring, to three-fourths of a pint; strain, and use as a gargle.

The sumac berries contain considerable bimalate of calcium, the malic acid in which seems to give them an especially beneficial influence on inflamed mucous membranes.

Salicylic Acid has been warmly recommended in the treatment of acute anginas of whatever form. In acute tonsillitis it has been used with great benefit both by internal administration and as a local application to the inflamed tonsil (p. 424).

Salol is recommended by WRIGHT in doses of gr. xv. repeated four times daily, in cases of acute tonsillitis.

Sodium Benzoate has been used with benefit in cases of acute tonsillitis (F. 611).

Sodium Borate enters into the formation of many of the gargles and insufflations used in cases of pharyngitis, acute and chronic (F. 587). The famous Dobell's solution for the treatment of chronic naso-pharyngeal catarrh is as follows :

R. 628.	Sodii bicarbonatis,		
	Sodii biboratis,	āā	3ij
	Acidi carbonici,		gtt. xv
	Glycerini,		f. 3j
	Aquæ,		ad f. 3iv.
	Filtra.		M.

Sig.—Add to a quart of water and snuff several times daily, or use as a gargle.

Sodium Chlorate is sometimes used in the same manner as the potassium salt.

Tannicum Acidum must be used for its astringent qualities.

Terebinthinae Oleum. In the *Leavenworth Medical Herald*, 1876, Dr. S. H.

ROBERTS strongly recommends the use of turpentine externally in tonsillitis. He folds the flannel to four thicknesses, wrings it out in hot water, and pours oil of turpentine over a spot the size of a silver dollar. The flannel is then applied over the sub-parotid region, and the fomentation continued as long as it can be borne. After removal, a dry flannel is applied, and the same region rubbed with turpentine every two hours. This application is continued daily till resolution occurs. The doctor believes, from the evidence of his long experience, that thus applied early in the disease the oil of turpentine has almost a specific effect in tonsillitis. That its action is not simply that of an irritant he has proved by employing mustard, croton oil, tr. iodine, etc., in the same class of cases. They always failed to diminish the inflammation of tonsils, while the turpentine succeeded. (See also F. 612).

Xanthoxylum.—A decoction of prickly ash bark is an efficient gargle in chronic pharyngitis with dryness of the mucous membrane. In similar cases also the fluid extract, ℥x-xxx, or the tincture f. 3ss-j, is a successful remedy.

ŒSOPHAGEAL STRICTURE.

The origin of this deplorable condition is usually found in the injuries to the gullet resulting from swallowing some caustic liquid, as lye, or in the presence of new growths from syphilis or cancer, or from the pressure upon the œsophagus of an aortic aneurism or some tumor in the posterior mediastinum. It may also result from the cicatrix of a simple ulcer.

Injuries to the œsophagus from the swallowing and impaction of bodies too large for easy passage through the tube may occasionally occur, and although generally fatal unless at once removed, may be

relieved by operative procedure, and later cicatricial narrowing of the œsophagus result from the wounds thus occasioned. In case of impaction of a body in the œsophagus the first effort should be made with an œsophageal bougie to push it onward if it is too far down to permit of being grasped by a forceps and withdrawn. If it is impossible to push it onward or to retract, either by forceps or specially arranged apparatus, the operation of œsophagotomy should be performed early. This, like operations for obstruction in other parts of the alimentary canal, holds out the best prospect for success in early rather than late operative measures. The operation being performed and the body removed, alimentation may be permitted at once, only liquids being allowed, and the patient lying upon his side. The leaking which occurs is usually small, and does not interfere with the healing of the wound to any extent. Where tissue of the œsophagus has been lost through sloughing or ulceration, it may be necessary to feed through the stomach tube inserted through the mouth, nostrils or through the wound. It may perhaps be necessary in these last cases, too, to do some feeding by the rectum, although this may be generally avoided.

The immediate treatment of acute inflammatory conditions of the œsophagus arising from the swallowing of corrosive liquids, must necessarily be of an expectant nature, and rest for the inflamed membrane sought to be obtained. Swallowing of all solids and of liquids which are capable of fermentative changes, should be prohibited. The nutrition of the case should be kept up by rectal alimentation. Occasionally small amounts of some neutral emollient fluid may be permitted, as the tea made from slippery elm bark or barley water, and small bits of ice may be allowed to melt in the mouth to slake the thirst.

Where the impacted body is of digestible nature, as a piece of meat, the employment of digestants to bring about its disintegration *in situ* by artificial digestion should be thought of, solutions containing pepsin in an acid medium or of trypsin in an alkaline fluid having been successfully used to accomplish the desired result.

When the stricture is established and is recognized from the dysphagia and other symptoms, the treatment becomes fairly uniform, although the nature of the cause must be taken into consideration in relation to the method of dealing with the lesion. For example, where there is a syphilitic or rheumatic element in the case (stricture occasionally being due to rheumatic tissue formation), the use

of the iodides is strongly indicated in combination with mechanical treatment. In all cases the local measures are of prime importance. In all cases where the stricture is of simple inflammatory origin, or where in the absence of an ulcerating and soft neoplasm, or of an adherent aneurism of the aorta, the danger of perforation of the œsophageal wall is reduced to a minimum, and the dilatation of the stricture by means of œsophageal bougies should be practised. In this operation in case of tight strictures the smallest bougies should be first employed and continued until swallowing of liquids is possible; this accomplished, immediate danger is at an end, and the complete dilatation by larger instruments may be carefully and gradually undertaken. SENATOR (*Therap. Monatsh.*, 1889,) recommends for this purpose a distensile sound, made of laminaria or tupelo, by which gradual dilatation is brought about when the sound has been introduced into the stricture. It should not be retained for a long time, however, for fear of exciting undue irritation and lighting up again the inflammatory process. In cases where dilatation by means of bougies cannot be accomplished, or where the presence of an ulcerating new growth prevents the use of these instruments, the operation of gastrostomy has been performed, but as the rate of mortality is high in this operation, recourse should not be had to it save in cases in which it is adjudged to be absolutely necessary. In some cases of stricture impermeable to the bougie from above, after gastrostomy had been performed, the sounds could be made to pass the stricture from below, having been introduced through the gastric fistula and the cardiac orifice of the stomach into the œsophagus. There are many surgeons who condemn this operation of the formation of a gastric fistula roundly, although in selected cases it has undoubtedly prolonged life. A method which is open to fewer objections and as a rule applicable to cases of stricture from œsophageal tumors, as cancers or breaking-down gummata, is the insertion into the œsophagus of a permanent tube. There are a number of cases in which impending death has been apparently averted for a number of months, a year or more, by the use of this measure. The patient may be readily and well fed upon liquid food through this tube, and the immediate benefit is generally most marked, the unfortunate individual being morally and physically a new person for a time, until the encroachments of the tumor finally end his suffering. The catheter should not be permitted to end in the gullet, but should be permitted to extend outside of the nose or mouth, lest in the swallowing

efforts of the patient, some of the fluids enter the œsophagus externally to the tube, and being retained, undergo decomposition and give rise to unpleasant effects. Generally, in keeping a catheter in place permanently, there will at first arise a certain amount of irritation, but after a short while this subsides, as, too, does the feeling of discomfort from its presence.

Internal œsophagotomy, the division of the stricture with an instrument similar to an internal urethrotome, and the use of electrolytic methods in the removal of the stricture, are also recognized methods of treatment, but are to be reserved for selected cases.

The free use of opiates in cases of stricture of the œsophagus, especially of the malignant type, is strongly indicated.

For the preparation of nutrient fluids for enemata in these cases, or for feeding by the œsophageal catheter or gastric fistula, when the gastric action is below par, see Vol. I., p. 302.

Or the following instructions, given by

DR. MORRELL MACKENZIE, OF LONDON,

as to alimentation in cases of cancer of the œsophagus, may prove valuable.

As an aliment in this disease, milk is of the most value. The patient must, as far as possible be kept free from pain, and rest at night insured. Subcutaneous injections of morphia offer the most suitable means of effecting this end. In cold weather, the apartments should be kept warm, all the conditions of the patient tending to lower his bodily temperature. As the disease advances, absolute aphagia is established, and the patient must then be fed by nutritive and stimulating enemata. Instead of the large liquid enemata which are commonly employed, it is better to use the semi-solid compounds of LEUBE, who has shown how greatly rectal digestion is assisted by the presence of pancreas.

The former, recommended by Dr. M., is:

629. R.	Beef, mutton or chicken,		iv
	Pancreas,		ij
	Fat,		℥
	Brandy,		ij
	Water,		℥iij.
			M.

These ingredients, mixed together, will measure about six ounces. The meat, sweetbread and fat must be first passed through a mincing machine. It is often desirable to add five or ten drops of laudanum

to the enema, which should not be administered more than once in the twenty-four hours. The rectum should be washed out twice a week with warm water, three or four hours before giving the nutritive injection. It is necessary to use an enema-pipe with a bore of half an inch, otherwise the nutritious mass will not pass.

STRICTURE OF THE PYLORUS (GASTRIC CANCER).

The great majority of acquired cases of pyloric stricture being of cancerous origin, the two conditions may well be considered here under the same heading. (See also Vol. I, p. 298.)

PROF. KUSSMAUL, OF FREIBURG.

In 1867, this writer first advocated the use of the *stomach-pump* in gastric cancer. He stated that relief only, but no cure, can be expected; 1. In cases of cancerous stricture of the pylorus; 2. If the pylorus be very considerably contracted by a cicatrix; 3. If, with even a moderate stricture, the walls of the stomach have, in consequence of the chronic gastritis, undergone a permanent degeneration. That substantial relief may be afforded by the use of the stomach-pump is proved by the history of two cases of dilatation of the stomach thus treated by Dr. AFFLECK, in Scotland, as both patients provided themselves with stomach-pumps on their dismissal from hospital, to carry on the treatment for themselves. (*British Medical Journal*, May, 1872.)

DR. JAMES M. HUTCHINSON, OF PHILADELPHIA.

This physician reports (*Philadelphia Medical Times*, May 27th, 1876,) a case of *cancer of the pylorus*, in which great relief followed the washing out of the stomach on alternate days with dilute alkaline solution (a drachm of bicarbonate of soda to a quart of water), as recommended by KUSSMAUL.

The following conclusions seem to be deducible from Dr. HUTCHINSON'S case:

1. That washing out the stomach will be useful in dilatation of that organ dependent upon stricture of the pylorus, even if this be due to malignant disease, by lessening the frequency of the vomiting.

2. That it diminishes the intensity of the pain, by preventing extreme distension of the stomach, and by the removal of its irritating contents.

3. That it renders possible the introduction of food into the stomach, and its digestion.

PROF. WILLIAM EBSTEIN, M. D., OF GÖTTINGEN.

This writer observes that, in spite of our ill success with remedies so far, we ought not to give up all hope that a specific for cancer may be some day discovered. It is impossible to say whether the fact that cancer of the stomach is extremely rare in certain countries (Egypt, Vera Cruz,) may not be made of some therapeutic use; at any rate, the subject is worthy of continued attention.

VON BENEKE has recommended the treatment of cancer with non-nitrogenous food, and with such stimulants as wine and tea; and although he starts from purely hypothetical premises, his method may be worth a trial in dealing with a malady for which there is as yet no cure.

At the present time our treatment must be purely symptomatic. The dietetic management of the patient is all-important. In stenosis of the pylorus, with considerable dilatation of the stomach, the use of the stomach-pump has in some cases afforded remarkable relief by unburdening the organ of the mass of stagnant and fermenting food which it contained. While, however, some patients are able to tolerate the instrument day after day, on account of the after-comfort which they derive from it, others are so much exhausted by the operation, or so little relieved by it, that it is impossible to continue it. In this latter class of cases the patients do best under the use of remedies which arrest fermentation in the contents of the stomach. One may give:

630. ⁱ R. Benzine,
Mucilage,

gtt. x-xv
f. 3j. M.

This amount four or five times a day.

Or, what suits many cases better, a few drops of carbolic acid, well diluted, five or six times a day. Both of these will diminish the frightful eructations of sour-smelling gas which rob the patients of their night's rest, and which narcotics do not in the least alleviate; and for the time they may completely arrest them.

In stenosis of the cardia, as soon as the diagnosis is tolerably clear,

all attempts at passing a sound into the stomach must, of course, be abandoned, otherwise the consequences may be most serious. All we can do here is to nourish the patient by enemata.

DR. NATHAN S. DAVIS, OF CHICAGO.*

Cancer of the Stomach.—This author is of opinion that in gastric cancer at any stage there is no reason in experience to believe the disease will yield to any kind of treatment.

The principal thing to be done is to confine the diet to bland, simple substances, which can be absorbed by the coats of the stomach; and these should be given in small quantities, so that what is taken at one time may be absorbed, without leaving any accumulation to be carried through the pylorus.

When the cases are somewhat advanced, the bowels are frequently not moved for many days, and the patient importunes for a cathartic medicine; but physic will only increase the distress, and should be withheld.

For the amelioration of the pain and to assist nutrition, Dr. DAVIS has employed with much success a solution of carbolic acid, rendered anodyne by paregoric, as:

631. R.	Acidi carbolici crystal.,	gr. vj	
	Glycerini,	f. 3 ss	
	Tinct. opii camphoratæ,	f. 3 iiss	
	Aquæ,	f. 3 ij.	M.

One teaspoonful every three or four hours.

Where the orifices of the stomach are not involved, although the peristaltic movements must necessarily be considerably impaired, yet so long as the growth remains localized, and the patient is not exhausted by hemorrhages or other accidents, the general symptoms may be less urgent. Sometimes it may even appear as if the patient's only malady were a severe chronic catarrh of the stomach. The treatment of this catarrh, and especially of such symptoms as the extreme anorexia, the nausea and the vomiting which characterize it, must then be our chief object. The best practice seems to consist in giving small quantities of food at frequent intervals, followed by two or three tablespoonfuls of very dilute hydrochloric acid (0.4 per cent.) In such cases transient benefit arises from small doses of *iodide of iron* in combination with bitters, the iodine apparently acting through its antiseptic and anti-putrescent qualities. In this way

* *Clinical Lectures on the More Important Diseases*, Philadelphia, 1875.

the harassing pain and discomfort caused by the perversion of the digestive functions may be much relieved. Narcotics should not be given too early, and the quantity of them should be as small as the severity of the symptoms will allow.

Lime-water and thin porridge may be given occasionally.

The recent advances in abdominal surgery, notably those practiced after the principles brought forward by Prof. NICHOLAS SENN, of Milwaukee, have placed within the reach of modern surgeons the remarkable advantages offered by the operation of gastro-enterostomy. In these cases of obstruction of the pylorus there is formed by this procedure a gastro-intestinal fistula between sound parts of the stomach and of the intestinal canal, permitting the passage of the gastric contents into the intestines without the utilization of the pyloric canal. In this way nutrition is very much benefitted in these cases, and, as a rule, life is considerably prolonged. BERNAY, of St. Louis, in selected cases, also advises the ablation of the cancerous portion of the stomach, and his results in a limited number of cases have been exceedingly flattering.

During the healing of the wounds made in this operation of establishing a gastro-intestinal communication away from the diseased pylorus, of course the patient is to be maintained by means of nutrient enemata.

In all cases of gastric cancer there is a decided demand for the use of opium in some form, to allay the intense pain.

HERNIA.

The therapeutics of hernia, aside from the operative measures for its relief or cure, are such as are auxiliaries to taxis, and those by which operative procedures may be avoided. It is scarcely to be regarded as good surgery any longer, however, in the treatment of a strangulated hernia, to waste much time over these auxiliaries and make-shift measures, if taxis having been properly performed fails of its object. The measures which may be mentioned in this place may be considered under the following headings:

Anæsthetics.—These are considered indispensable as relaxants in preparing for taxis. The anæsthetic should be given to the extent of completely relaxing the patient.

Aspiration.—Several French and English surgeons have very earnestly advocated the employment of aspiration in all cases of irreducible hernia, although they do not pretend it is of universal applicability, having no influence upon the reduction of a strangulated epiplocele, or of hernia complicated by adhesions. It is claimed that by reduction of the size of the strangulated gut the subsequent efforts at return of the bowel are rendered much more easy. Whatever has and can be said of this procedure, there is little doubt in the mind of the editor that it is really a very dangerous and generally a culpable procedure in these days of modern surgery. The return of a gut perforated with however minute an opening, and with its wall in a more or less diseased condition, lays open the patient to the danger of complete rupture of the wall, with its frequently fatal consequences.

Baths.—The warm bath is used to depress the system and produce relaxation of the abdominal muscles. Commencing with a temperature of 95°, it should be raised to 110° F^{ah}. The full bath is of most service, but in absence of means a sitz bath in an ordinary tub may be employed.

Cold, applied to the tumor and around it, is valuable in effecting relaxation and preventing inflammation. It may be done by laying a bladder of pounded ice on the tumor, or by cloths wrung out in ice-water, or by a refrigerant lotion (as p. 66), or by a thin sponge saturated with ether, by enemata of ice-water, or by the ether spray. Cold should not be applied long in case of weak and old persons, particularly if they have a thin cutaneous and subcutaneous covering.

Cupping.—Dr. B. H. WASHINGTON, of Tennessee, (*Nashville Journal of Medicine and Surgery*, September, 1876,) states that the Russian peasantry reduce hernia by a dry-cupping on a grand scale; they take a small cooking-pot, and make the bottom as hot as they can without making the rim too hot, and then applying it over the abdomen, cool the abdomen with cold wet cloths, and thus suck up a large portion of the intestines, that they are able to make sufficient traction to draw it back.

He has modified this plan very successfully, and considers it far superior to the ordinary tedious, painful, and sometimes dangerous taxis. His plan consists in applying a dry cup to the abdominal wall, say over the umbilicus; then let an assistant stand between the legs of the patient and lift the hips as high as he can; then the operator, drawing on the dry cup, produces a vacuum, and, atmos-

phic pressure being superadded to the weight of the intestines gravitating towards the chest, a reduction is easily effected in less than a minute.

The operation is almost painless, and really seems so to the patient, for the relief from the preceding pain is so great that he never says a word about suffering from the operation.

This method was also suggested by Dr. LIPSCOMB, in the *American Practitioner*, October, 1875.

Dilatation.—Dr. H. R. ALLEN (*Medical and Surgical Reporter*, 1875), of California, advocates the use of the dilator for the relief of the strangulation, without having recourse to herniotomy. Dr. ALLEN says that some years ago he succeeded in reducing a few cases of severe strangulation which seemed urgently to demand herniotomy as the only hope of relief, by introducing the index finger forcibly into the ring and distending it by lifting or pulling upon the stricture. He says: "I found it easily lacerated in some cases, and the tension was at once relieved; but other cases proved more firm and unyielding, and I feared that the necessary pressure to insert the finger might be injurious; although the tissues of the hernia rested upon a smooth posterior wall, and the finger substituted a distributed pressure, instead of the sharp cutting edge of the stricture, I felt that some instrument might be devised which would enable me to accomplish the same result without any of the apprehended dangers."

The instrument which Dr. ALLEN has devised he terms a dilator. "To use the instrument the patient is placed upon his back, the scrotum invaginated with the finger, which is carried up to the ring. The finger guides the blunt probe into the stricture as it would a uterine sound into the uterus." The advantages claimed for this method are that it is "perfectly safe, as the skin is not punctured and the laceration is subcutaneous. * * * The amount of laceration is perfectly at the option of the operator; and if the first attempt proves insufficient, it may be repeated. * * * One great advantage is, it is admissible at any stage, when the parts are not fatally injured, and if employed immediately when taxis fails, all the danger of inflammation or gangrene is avoided. The laceration, instead of being injurious, has so far proved an advantage, by inducing sufficient inflammation of the ring to produce adhesion if a firm truss is at once employed, and quiet enjoined. The operation, so far, has not only been easy and safe, but a life-saving treatment, relieving strangulated hernia of its terrors and fatal results."

On the other hand it must not be lost sight of that in a hernia in which the walls of the strangulated gut have lost their tonicity and strength, there is grave danger of tearing them in using such blind and often ill-advised a measure, as pressing a non-resisting body into the already closely occupied ring.

Elastic Pressure.—Some European surgeons report reductions of scrotal herniæ by winding layer after layer of elastic bandage upon the scrotum, until the tension of the rubber forces the gut back into the abdomen—a measure in which nothing but blind force is used.

Electrolysis was suggested by NELATON, and has been lately employed by Dr. MORARI, of Madrid. (*Liglo Medico*, 1880.) In a case where taxis was unavailing, the electro-magnetic machine of Breton was used, one rheophore being applied *in ano*, while the other was placed in contact with a needle passed deeply into the tumor, the current applied interruptedly at intervals of ten minutes. At the first application the hernia became considerably reduced in size. After the second the needle was removed, and taxis having been applied, the whole mass was readily returned into the abdomen.

The forcing of a needle into the hernial mass for the purpose of electrolysis, or for anything else short of actual operation, is a necessarily dangerous and unjustifiable practice.

Enemata.—When the hernia is not very acutely strangulated it is good practice to commence the treatment by the administration of a large enema. This, by emptying the lower bowel, will alter the relation of the abdominal contents, and may materially aid reduction. The best enema is one of gruel and castor oil, with some turpentine added. (ERICHSEN.) A full-sized tube should be used, passing high up into the gut. Enemata of ice-water sometimes are efficient relaxants to the ring. In very desperate cases of strangulated hernia with with stercoraceous vomiting, where an operation could not be performed, Mr. W. ADAMS, of London, reports some extraordinary cures with large enemata of mixed oil:

632. R.	Olei olivæ,	Oiv	
	Olei ricini,		
	Olei terebinthinæ,	āā	f. ℥ iij. M.

This whole amount (over two quarts) for one injection, to be repeated if required.

The injection should be performed slowly, with an elastic tube nine or ten inches long. (*British Medical Journal*, December, 1874.)

Ergot, both by the mouth, locally to the tumor, by hypodermic

injection and enema, has been tried, and in some cases with apparent success. (*Medical and Surgical Reporter*, May 3d, 1879.)

Errhines.—Dr. CHARLES DENISON, of Colorado, has found the act of *sneezing* of decided assistance as an auxiliary to the taxis. Ordinary snuff may be used. He explains the action of the sneezing by saying there seems to be a billowy movement of the anterior wall of the abdominal cavity, from above downwards, which is suddenly reversed. This reversed action is accompanied by a sudden relaxation, as it were, at which instant a little of the contents of the hernial sac shoots back through the intestinal ring.

Heat.—Hot fomentations and hot immersions are valuable relaxants. There is no rule which can be laid down as to when heat or cold should be preferred.

Inflation.—Inflation of the lower bowel in hernia has for some time been popular with French surgeons to aid in reduction of herniæ. A long elastic tube should be inserted into the rectum after the latter has been well washed out, and air slowly injected by a bellows, syringe or hand ball. The inflation produced exercises a traction on the implicated bowel much more accurately in the line of reduction than can pressure from without. It is well to aid the efforts of inflation by applying cold to the tumor, and properly relaxing the muscular system.

Nauseants.—In former times tobacco, tartar emetic, lobelia, etc., were used as depressants, and to relax the system. Their employment is wholly superseded by anæsthetic and other means, and is generally condemned.

Opium.—A large dose of opium, by hypodermic injection of morphia or otherwise, will induce relaxation and avoid the necessity of an operation.

Position.—To obtain the greatest aid from the force of gravity is of much importance in the taxis, and to do this, everything depends upon placing the patient in the most suitable position. The following rules have been laid down by good authorities:

The *erect position* is that proper in the reduction of strangulated inguinal hernia, the thigh flexed and adducted, the head and shoulders bent forward, the spinal column inclined toward the groin in which the tumor exists. If this fails, the patient may be placed upon his back, the head and shoulders raised on pillows, inclined as before, the knees drawn up and adducted; or, in a *semi-prone* position, upon his hands and knees, with head depressed and pelvis ele-

vated; or, as has been highly recommended, in the semi-prone position, upon the side of the hernia, the thighs flexed upon the body. Complete *inversion*—holding the patient up by the feet—has been much lauded by some surgeons, but according to others rarely proves successful, and is very exhausting to both patient and physician when it falls to the lot of the latter to perform it.

A somewhat modified form of inversion, which he calls the "tracile method," has been described by Dr. D. LEASURE, of Pittsburgh. (*American Journal of Medical Science*, April, 1874.) It is as follows:

After having given the patient a full dose of morphia, or morphia and atropia, hypodermically, to allay pain and vomiting, hot fomentations are applied to the hernial tumor for the space of an hour or two, so as to insure as favorable a condition as possible of the contents of the sac, before attempting to return them into the abdominal cavity; he administers an anæsthetic, and when it has well overcome muscular resistance the patient is raised by the feet or hams till only the head and shoulders rest upon the bed. The muscles of the abdomen, diaphragm, and the muscles of the chest which control the bony framework of the thorax, are thus relaxed by the anæsthetic. The abdominal viscera gravitate against the diaphragm, which offering feeble resistance, retreats before them into the cavity of the chest, while the diaphragmatic breathing is diminished, the respiration becomes almost entirely thoracic, and the contents of the abdominal cone, now resting on its base instead of its apex, fall by their own gravitation still further away from the brim of the pelvis, and the mesentery, borne down along with its attached bowel, pulls every portion of its intestinal border after it, and if any portion of that intestinal border be entrapped within a hernial sac it pulls it out, and if there be any portion of omentum in the sac, the weight of the intestines, now resting in the reversed lap of the omental apron, drags it down towards the diaphragm and pulls it also out of the hernial sac, and the hernia is reduced.

Another still further modified form of inversion has been used by Dr. J. H. THORNTON, of the Indian Medical Service. (*Lancet*, August, 1875.) It consists in placing the patient in such a position as to bring the force of gravity into play to reduce the rupture. This may easily be effected by raising the foot of the patient's bed, and keeping it supported at an angle of 45° . In this posture the intestines naturally gravitate towards the upper part of the abdominal

cavity, and gradually draw in the ruptured portion. It is evident from the nature of the case, that a force acting gradually and equally from within the abdomen must be far safer and more effectual than any pressure applied externally.

He believes that the advantages of inversion over all other modes of treatment are, that it is generally effectual, absolutely safe, and universally applicable. It can be used by any person, at any time, in any place; and should it prove unsuccessful in effecting reduction (which will rarely be the case unless adhesions have formed), the patient is in a more favorable condition for the performance of the necessary operation than he would be after the employment of the other methods.

Purgatives are sweepingly condemned by some authorities. Mr. ERICHSEN, however, points out that in the treatment of the *incarcerated hernia* of elderly people a good purgative injection, as the compound colocynth enema, should be thrown well up into the bowel; and that after the reduction an active purgative should be administered by the mouth.

Relaxants.—The most important of these are the anæsthetics (which see). Nauseating relaxants should be used not at all. *Coffee* has proved in a number of instances very valuable. A number of small cups of very strong hot coffee, administered at short intervals, will often greatly facilitate the taxis. Belladonna inunctions over the mass have been recommended by a number of authorities.

Taxis.—The rules for taxis properly belong to operative surgery. The following brief suggestions, as to when it may be employed, from an article by Dr. MAX SCHEDE (*Centralblatt für Chirurgie*, November 25th, 1874) will, however, be in place:

When the integuments still retain their normal condition, when the tumor is not tender, and when no crepitation can be felt, we can always conclude, according to this author, that the walls of the gut still have sufficient resistance to permit energetic taxis without danger. It is impossible to lay down general rules as to the period when attempts at reposition are still admissible; neither the number of days since the incarceration nor the presence or absence of stercoraceous vomiting can furnish these. In each case a thorough local examination, combined with a consideration of the general condition of the patient, is called for. In order that taxis may succeed—firstly, profound narcosis is necessary; secondly, the position

of the outlet must be determined exactly. The author generally employs both thumbs, with which he exerts alternate strong pressure in the direction of the outlet on a portion of the tumor which is near it; when the hernia is very small, he exerts his pressure directly on the summit of the hernia. In the cases successfully reduced by taxis, the author has seldom exerted pressure less than five minutes, and never more than a quarter of an hour, but during this time he has employed a degree of force which would generally be regarded as inadmissible. He believes that the danger of causing *reduction en masse*, and of failing to recognize it when it has been produced, is not great; for, though the persistence of symptoms of incarceration may sometimes be confounded with the effects of the anæsthetic, the tendency of hernia to reproduce itself will always be an indication that the reduction has not been performed in a proper manner.

Taxis by introducing the hand into the rectum is of value at times.

Dr. J. D. BRYANT, of New York (*Med. Record*, 1890) believes that the abuse of taxis is a most common occurrence; that a quarter of an hour of well-directed and continuously applied taxis is a rational procedure, but more than that is unnecessary, unwise and painful. Repeated attempts on the part of different persons is a grave mistake, and the present status of operative surgery is such that taxis has come to be of but little practical benefit to the patient except in special cases.

Trusses.—The following explicit directions are given by Dr. D. HAYES AGNEW: "When you advise a patient to use a truss, you should always make it a rule to superintend its first application. If you cannot be present, give your patient the following directions: 1. Never accept a truss until you get one which fits. 2. Try it by putting it on and (*a*) stooping down and rising up suddenly; (*b*) by coughing violently and persistently; (*c*) by separating the limbs and stooping; (*d*) by crossing the limbs and sitting down; (*e*) by going through all kinds of motions. Of course, the truss is not a proper one if the hernia slips away from it in the course of any of these movements. In wearing a truss the following precautions must always be taken: 1. The patient must never take off the truss till he is in the recumbent position. 2. Before putting it on again the parts must be rubbed until they are all aglow, so that active circulation and full secretion are maintained. 3. The truss must be taken

off the last thing before the patient retires, and put on the first thing in the morning. 4. In the case of a child the truss should be worn all the time, day and night, after the first feelings of discomfort have passed away. At first it must be taken off three or four times a day, while the skin is thoroughly rubbed and anointed, and then put carefully on again. If these rules are conscientiously adhered to, a cure may be expected in the course of two or three years. The truss, at any rate, should not be taken off sooner than that. A permanent cure is much more likely to ensue if a hard pad has been employed.

Venesection.—As an efficient means of relaxing the system, general blood-letting was formerly in vogue. Chloroform, however, has now superseded it. Sometimes *leeching* around the hernial tumor will be a valuable aid in effecting reduction, especially when the local inflammation is high.

F. D. WEISSE, OF NEW YORK.

In the *Med. News*, 1891, the value of belladonna inunctions in the hands of this gentleman and of HAGEN (*Centralbl. f. Chir.*, 1890,) is noted. HAGEN states that in twenty cases of strangulated hernia he has used the following treatment: For several hours the hernial tumor is carefully treated by inunctions of

933. R. Extracti belladonnæ,
Adipis benzoati,

3j
3x. M.

Finally, under the skin, immediately near the tumor, is injected by means of a hypodermic syringe $\frac{1}{15}$ grain of sulphate of atropine, which may be repeated if necessary. At the same time with these inunctions and injections, taxis is employed, and in a certain number of cases HAGEN found it unnecessary to resort to herniotomy. The employment of these measures renders the tumor more soft and yielding, and furthers spontaneous reduction of tension. The reason for this treatment rests upon the statement of SCHMIEDEBERG that belladonna and atropine in minute doses cause a contraction of the mesenteric vessels and an increased peristalsis of the intestinal walls.

DR. I. N. DRAKIN.

This gentleman (*Ann. of Surgery*, 1889) warmly commends ether irrigations as a means of reduction of strangulated hernia. A teaspoonful of ether is poured every fifteen or thirty minutes over the hernial mass, and compresses applied in the intervals. After the

use of one or two ounces of ether in this manner, the hernia often slips back of its own accord; sometimes, however, slight pressure is required to facilitate its return to the abdominal cavity. In case of incarcerated scrotal hernia he advises that the following be used for irrigation.

634. R.	Ether,	20	
	Hyoscyamus oil,	4.	M.

BRUSTEIN has found that a small jet of ether on the hernial mass has the effect of greatly aiding in the return of the strangulated gut to the abdominal cavity. The sudden lowering of the temperature accomplished by this means probably has considerable effect in producing the result.

IRREDUCIBLE HERNIA.

An irreducible rupture should be protected by a truss with a large concave pad, or by a suspensory bandage, the object being to obtain constant and well-graduated pressure. Varied apparatus for this purpose has been devised.

Something may also be done by medical treatment in such cases. Mr. BRANSBY COOPER has recommended that an attempt should be made to convert the irreducible into a recudible hernia, by keeping the patient in bed several weeks on a low diet, with the continued application of ice to the tumor; and, if it contain much omentum, by giving small doses of blue pill and *tartar emetic*, so as to promote the absorption of the fat.

In the opinion of Mr. ERICHSEN, this plan deserves further trial, as he has witnessed successful results in some cases. Instead, however, of the medicines mentioned, he substitutes *iodide of potassium*, with advantage.

This suggestion has been put in practice by Dr. R. O. COWLING, of Kentucky (*Archives of Clinical Surgery*, July, 1877,) in a case of irreducible femoral hernia of the right side. He ordered for the patient an abdominal supporter with a concave pad, and prescribed the iodide of potassium, gr. x thrice daily, with directions to keep it up as long as it seemed to agree with her. The benefit of the treatment was early marked. She continued it for several months, the hernia decreasing in size, and finally becoming reducible.

RADICAL CURE OF HERNIA.

The radical cure of hernia is by far best and most safely accom-

plished by operative means; but it has been successfully practiced in a number of cases where the herniæ are small, by the injection of stimulating liquids in the neighborhood of the neck of the sac, in the manner proposed by

PROFESSOR JOSEPH PANCOAST, OF PHILADELPHIA.

The contents of the hernial sac being returned into the abdomen, and the ring explored to ascertain that no portion of the intestine protrudes, the pad of a well-fitting truss is slipped down so as to make pressure on the inguinal canal, and prevent any escape of the hernia. With the forefinger of the left hand, the spermatic cord, as it passes out from the external inguinal opening, is pressed upwards on the pelvic bone, so as to prevent it from being injured. A delicate trocar and canula, the latter having fitted to it a small Anel's syringe, is now carefully but firmly forced through the integuments with a rotary motion to facilitate its progress, and pushed forwards till it enters the external inguinal ring, or neck, at the sac. The trocar being now withdrawn, the canula is kept firmly in place, and twenty or thirty drops of the tincture of iodine, tincture of cantharides, or sulphuric ether, thrown in, and lodged in the neck of the sac, when this is practicable, or else in the vicinity of the external abdominal ring. Subsequently a small compress is applied over the minute wound made by the trocar, the pad of the truss slipping down over it, and the patient directed, for a week or two, to maintain the recumbent position.

In addition to the injection, in some of the operations, a tenotomy knife is introduced, and the internal surface of the neck of the sac scarified. The operation is not followed by bad results, the pain and inconvenience hardly amounting to that presented by a case of hydrocele treated by injection; and it may be concluded that in ruptures where the neck of the sac is small, and the abdominal aperture not too much enlarged by repeated descents of the hernia, there is a prospect of a radical cure; and that, in most cases, the operation mitigates the infirmity, allowing the hernia to be more readily retained by the ordinary mechanical means. (Dr. J. MASON WARREN, *Surgical Observations*, Boston, 1867.)

DR. GEORGE HEATON, OF BOSTON.*

The method for the radical cure of hernia proposed by this writer,

* *The Cure of Rupture*. Boston, 1877.

and practiced by him successfully in a number of instances, he calls that *by tendinous irritation*. It is not unlike the preceding in its principle, but differs from it in several important details, and the irritant employed.

The patient is placed on a bed in a recumbent position, the contents of the hernia returned into the abdomen, and the hernial sac also, when possible. Taking an instrument resembling an ordinary subcutaneous syringe loaded with the necessary amount of the irritant fluid, the operator introduces its beak into the inguinal canal, but outside of the sac, if this has been suffered to remain, in the following manner: invaginate the right forefinger in the scrotum and find the external abdominal ring, then with the left forefinger press perpendicularly upon the integument directly over this ring, and use sufficient force to, if possible, press the integument together with the finger directly into the ring. The left forefinger being at or in the ring, the spermatic cord and the sac, if in the way, are to be pushed to one side, so that nothing may remain between the external pillar of the ring and the finger except the integument and subjacent superficial fasciæ. Keeping the left forefinger thus, take the instrument in the right hand and introduce its freshly-sharpened and polished beak *quickly*, penetrating the integument and superficial fasciæ, just passing but not grazing the external pillar, and entering the canal at once. Then remove the left forefinger and gently insinuate the beak further on, well into the canal, exercising the greatest care not to impinge upon the spermatic cord, which is sensitive to the slightest touch, or upon the fibrous walls of the canal. To wound any of these parts endangers the success of the operation, and to penetrate the transversalis fascia would be particularly unfortunate. If the operator in attempting to pass through the ring should impinge upon or transfix one of the pillars (an accident to which the tyro is very liable,) the instrument will not be able to be freely and easily moved about, which it is to a remarkable extent when the canal is successfully entered. But before proceeding any further the surgeon may do well to confirm his diagnosis of position by transferring the instrument to the left hand, while with the right forefinger invaginated in the scrotal tissues he explores the inguinal region, and examines the exact situation of the beak. Beyond the prick of the puncture, the patient suffers but little pain if the introduction is skillfully performed. But any awkward movements of the beak about the spermatic cord will cause sharp pain, which is referred to the testicle or to the deeper parts of the abdomen.

Having satisfied himself that the beak of his instrument is in the canal, the surgeon then deposits about ten minims of the liquid irritant, emitting drop by drop, and spreading it as much as possible. The beak of the instrument should be well swept about while delivering its contents, passing around the exterior of the sac if unreduced, and wetting all the fibrous tissues. Particular care should be taken that the intercolumnar or arciform fibres, and the inner edges of the external ring, are wet with the irritant. The canal is usually found much more free than would be anticipated, and any adventitious adhesions can be either broken or avoided. A small though essential amount of the irritant should be placed in the extreme upper portion of the canal, so as to operate upon the fibres embracing the internal abdominal ring. Owing not only to its proximity to the abdomen, but also, and more especially, to the usual presence in the upper part of the canal of a few muscular fibres of the internal oblique, the sensitiveness to irritation here is extreme and the slightest amount of material produces all the effect that is usually desirable.

Having wet the entire fibrous interior of the canal and of the inguinal rings, the beak is then withdrawn quickly, so that none of the injection may be left in the cellular tissue and fasciæ lying beneath the integument and just exterior to the external abdominal ring. At the instant of withdrawing the beak, press the finger over the puncture, thus preventing any oozing of blood which might occur if the skin is delicate, and also in the case of a hernia with a free opening hindering any of the injection which has not been absorbed from oozing outward. The application of the irritant may cause some slight immediate pain, which is soon allayed by the morphine which is contained in the injection. The previous protrusion should not be allowed to descend after the application of the irritant, nor the patient be permitted to assume even the sitting position until a suitable bandage or means of support has been properly applied.

Irritant.—Take of Thayer's fluid extract of quercus alba, prepared in vacuo, one-half an ounce; of the solid alcoholic extract of quercus alba, about fourteen grains. Triturate with the aid of gentle heat for a long time in a mortar until the solution is as perfect as possible. It is well not to exceed this amount of the solid extract, else the mixture will be too irritating. Dr. HEATON usually prepares a quantity of this mixture sufficient for six months' or a

year's supply, and is very cautious in first using it, adding a little more of the solid or the fluid extract, accordingly as he observes it produces too little or too great an effect. Having once adjusted the proportions in this manner, and satisfactorily tested the mixture, he uses it and no other until the supply is exhausted. The proportions never need vary much from what is stated above.

Of late years it has been his habit to add to this mixture the sulphate of morphine in the proportion of about one grain to the ounce. This has the effect of diminishing the dull aching that follows the operation, which is caused by the irritation of tendinous tissue. It also serves the further purpose of constipating the bowels, which is also induced by the tannin in the mixture. The amount of this mixture used at any one operation is, as said before, about ten minims.

Before the New York Medical Society, in 1887, Prof. WEIR, of New York, in a paper devoted to this method of the radical cure of hernia, spoke of it as a safe and proper method. In his experience with it, he has had a number of very excellent results.

INTESTINAL OBSTRUCTION, OCCLUSION AND INTUSUSCEPTION.

PROFESSOR GEORGE H. B. MACLEOD, F. R. S. E., OF THE UNIVERSITY OF GLASGOW.

This author says that in any case of intestinal obstruction, *opium* is our sheet anchor to combat inflammation; it must be used freely. *Belladonna* and *atropia* are now little used. *Leeches* are rarely employed. *Ice*, by its power of calming irritation and spasms, is of much use. In most cases, *purgation* must be wholly avoided, and only *enemata* used. When given early, in most instances, purgatives only augment the already exaggerated peristalsis; and, if administered late, they have an exhausted and paralyzed bowel to deal with. When, however, a careful examination fails to show that any organic obstruction exists, and there is otherwise no objection to the practice, the exhibition of from ten to twenty grains of calomel in one dose—repeated, if necessitated by its rejection—often works miracles. *Galvanism* has been tried in cases of obstruction, occasionally with good effects. It is when stercoraceous masses occasion it, that this mode of treatment is of most service. In 1825, LEROY D'ETIOLLES recom-

mended the current to be passed from the mouth to the anus; but DUCHENNE proposes that one pole be inserted into the rectum and the other be moved over the surface of the abdomen, according to the place of suspected stoppage in each case. SEMMOLA (*Brit. Med. Jour.*, 1892,) states that in cases of intestinal occlusion due to transient intestinal paralysis, the employment of the constant electrical current as suggested by DUCHENNE will afford marvellous relief. Even in cases of obstruction by foreign bodies, the use of purgatives is reprehensible. It is now well known by utterers of false coins, who swallow their base counterfeits when detected, that a system the very reverse of purgation best rids them of their burden. They keep their bowels confined and distended by bulky and costive food, so as to envelop the coins and allow them to be slowly carried downwards.

If the bowels be much distended with air, they may be punctured with advantage. By percussion, one can easily make out the best spot for the insertion of the small trocar and canula; and then, if gentle pressure be made on the abdomen, both air and fluid may be made to escape. As the distension goes down, the tube must be gently pushed on to prevent it escaping from the portion of the gut it has entered. There is no fear of undue inflammation or extravasation, as adhesions soon form, even when it is desirable to leave the canula in place. Doubtless, in many cases, the aspirator would be found very useful in unburdening the bowel, and so diminishing congestion and tension, and improving the chance of its resuming its function. In cases fitted for it, the small aperture made by the canula might be enlarged by means of a tangle-tent, so as to serve the purpose of an artificial anus. It has been frequently found after death that a vast amount of the accumulation about the place of obstruction was sufficiently fluid to be removed in some way, as has been above hinted at.

In all cases of obstruction, a most restricted dietary must be observed; in fact, only enough given to support life. No solid or bulky food should be allowed; but small quantities of the most soluble and sustaining meat essences, milk, egg and brandy flip, ice, etc. The stomach must not be loaded even with water. Nutritive enemata will help much.

No reference need be made to exploded methods of administering mercury, shot, etc., to act mechanically in cases of obstruction; and such medicaments as tobacco-injection, strong coffee, ergot, nuxvomica, etc., are now very seldom employed.

(The use of enemata of tobacco infusions in cases of intestinal obstruction has been revived recently by W. D. JONES (*Med. Notes*, 1891,) with some show of success. He uses an infusion made of the strength of one drachm of plug tobacco to a pint of boiling water (cooled down, of course, before injection); in delicate persons he states that he would fortify the patient against any undue depression that might follow by administering an ounce or two of good whiskey with half a drachm of aromatic spirits of ammonia, a few minutes prior to giving the enema.)

In volvulus and stricture, the chance of successful treatment, aside from operation, is very small; so, too, in case of internal herniæ. For invagination low down, large enemata or the old Hippocratic plan of distending the bowel (now easily accomplished under chloroform) with air introduced by bellows or special instrument, from below, should be employed, if they can be carried out before the portions of bowel involved have become hopelessly fused together. The inversion of the patient cannot do good; but the careful insertion of a bougie (possibly armed with a sponge) might prove advantageous in certain cases of intussusception pressing down near the anus. The strength of the patient should be well supported, and time gained for the occurrence of those changes in the bowel by which a spontaneous cure may be secured.

Stercoraceous accumulations must be mechanically removed. A lithotomy scoop or ordinary spoon may get at a good deal of the material; but a stream of warm water, made to play vigorously on the mass, or got more slowly to permeate or disintegrate it, by being allowed to come into contact with it through a long tube connected with a reservoir raised high above the bed, is a better plan. A calomel and jalap purge will complete the cure.

DR. THOMAS HAWKINS, OF NEW YORK.

The use of large fluid injections is strongly urged by this writer. (*Medical and Surgical Reporter*, December, 1876.) He reports a number of successful cases, and adds that there are three rules essential to success:

1. The use of the utmost force possible, but with great care and caution.
2. Persistent and continuous repetition of the injection until the passage is effected.
3. The adoption of a suitable position for the patient.

Dr. HAWKINS uses simple warm water. That containing *ox-gall* in solution gr. x-xxx, is much more efficacious, especially in cases arising from partial paralysis of the bowels.

Dr. WILLIAM BRINTON (*Dublin Journal of the Medical Sciences*, May, 1869) gives a rule by which fluid enemata will enable us with more or less accuracy to decide the locality of an intestinal obstruction. If one pint of fluid is retained, the difficulty is in the rectum. If two or three are retained, it is at or in the sigmoid flexure. A still larger quantity indicates the colon as the seat of the trouble.

In one case in which the obstruction was at the upper part of the ascending colon, nine pints of fluid were introduced.

The most favorable position of the body for the retention of large injections is upon the knees, with the head and shoulders depressed. 98° Fah. is the most acceptable temperature for the fluid, which should be slowly introduced.

CLAUSI (*Il Morgagni*, 1889), quoted in *Med. News*, 1890, reports the cure of two cases of obstinate obstruction by the injection of three drachms of ether and alcohol in ten ounces of water by means of an ordinary syringe. The patients felt a sensation of warmth in the entire belly and immediately belched up air loaded with the odor of ether. A movement of the bowels soon followed.

M. ANTOINE TARIOTE, OF PARIS.

In a thesis on the subject, (1874,) this writer concludes that intestinal occlusions may be divided into two very distinct categories: 1. Intestinal occlusions of slow origin, caused either by simple accumulation of fæcal matter, or by paralysis of the intestine or diminution of its size in consequence of the presence of foreign bodies, stricture and compression. 2. Intestinal occlusions which make their appearance very abruptly and rapidly, arising from true internal strangulation, invagination, retroversion or twisting of the intestine. In gradual intestinal occlusion, opium can only be used to overcome the pain or sufferings of the moribund patient. In sudden intestinal occlusion, if there be no well confirmed internal strangulation, opium employed from the commencement, concurrently with applications of ice to the abdomen, or blood-lettings, calms the local irritation and the resultant spasm. It also quiets the accidents arising from the general irritation, anxiety, small pulse, chilliness, etc. This treatment may by itself re-establish the circulation of the gases. The re-establishment of the circulation may be advantageously hastened by the administration of a purgative.

PROF. R. H. FITZ, OF BOSTON.

Prof. FITZ (*Boston Med. and Surg. Jour.*, 1888,) in an excellent paper upon acute intestinal obstruction, states that nearly all cases of acute mechanical intestinal obstruction die unless relieved by surgical interference, and that medical treatment has proved of avail in a certain number of cases of intussusception, in perhaps a few cases of twist of the large intestine, and in some cases of obstruction by gall-stones in the small intestine. It is the duty of the physician in these cases to relieve the pain, and then to at once estimate by means of rectal injections the capacity of the large bowel, so as to be in position to realize the progress and the dangers of accident in treating the case.

In cases of intussusception, aside from the surgical operative measures, the treatment consists essentially in the employment of such mechanical means as rectal injections or inflation, or replacement by a repositor. In the use of any of these measures, the patient should be completely anæsthetized, that advantage may be had from the relaxation of anæsthetization. Inversion of the body, and massage of the tumor where it may be felt through the abdominal walls, are means not to be overlooked. In cases of obstruction from gall-stones in the small intestines, opiates are often necessary. Cathartics have been employed in cases resulting favorably, besides the suggestions above indicated. Stimulation of peristalsis by massage and electricity seem, sometimes, of value in these cases.

Where medical treatment does not accomplish the desired result within the first two or three days, the case is one for surgical operative treatment; where this is refused, the physician is restricted in his efforts to the relief of pain and distress by narcotics, intestinal punctures and gastric siphonage.

This limit set by Dr. FITZ upon the period for the exercise of tentative medical and palliative means of treatment is to be regarded as longer than is generally conceded. In acute intestinal affections requiring operations, it is a rule, with few exceptions, that the earlier the operation the greater the chance of ultimate success.

DR. W. E. FOREST.

In the giving of large rectal injections in cases of intussusception it is very evident why one should possess some means of recognizing the degree of pressure exercised upon the wall of the bowel. In using the ordinary Davidson syringe this is not possible ordinarily,

and it is possible in strong hands that as much as sixty or seventy pounds to the square inch of bowel surface be produced—a force far more than necessary to rupture the wall of the intestine. It is estimated that ordinarily the limit of pressure cannot safely exceed fifteen pounds to the square inch in adults, or six to eight pounds in children. In measuring the pressure it should be recalled that the ordinary atmospheric pressure at the sea-level is fifteen pounds to the square inch, and that this is sufficient to support a column of water thirty-three feet in height. Hence a column of water thirty-three feet high exerts a pressure of fifteen pounds upon every square inch of surface at its base. Held in an ordinary tube and allowing for friction and other errors, it is therefore probably nearly enough correct to say that every two feet of the column represents one pound of pressure. At six feet height above the patient, a pressure of three pounds to the square inch is exerted; at twelve feet, a pressure of six pounds.

Apply this principle to a case of intussusception in a child, for example. The surgeon obtains a rubber tube of twelve to twenty feet in length, attaches it at one end to a funnel, at the other to the nozzle of a Davidson syringe. In order that the injected fluid may be retained, a roller bandage may be wound about the nozzle at a convenient position so as to form a shoulder; this pressed against the sphincter will prevent any loss. A pitcher of warm salt water completes the apparatus, and the father of the child is the assistant surgeon.

"The patient is taken into the hallway of the house, so that the requisite elevation may be gained, and there anæsthetized. The surgeon inserts the nozzle of the syringe and retains it in the rectum with one hand, and with the other manipulates the walls of the child's abdomen. The assistant pours water in the funnel and slowly raises it, mounting the stairs at the time if necessary. When the funnel is raised twelve feet above the level of the child's body, great care should be exercised, as the pressure is now about six pounds on every square inch of colon below the obstruction. It is seldom that a greater pressure than this will be needed to reduce a recent invagination. The pressure should be increased very slowly, as time is an important element in reducing an invagination. If in any case the pressure mentioned above does not bring about the end aimed at, the pressure may be increased up to ten pounds to the square inch."

In several cases of intussusception of the lower portion of the bowel, with protrusion of the mass from the anus, RIVINGTON (*London Lancet*, 1890) reports successful results from replacing the intussusception as far as possible into the rectum, and then inserting into the rectum a Barnes' bag and filling it with fluid slowly so as to distend the bowel. The writer would explain the result by supposing a peristaltic or anti-peristaltic action being induced in the bowel by the presence of the distending bag.

INTESTINAL PERFORATION.

This is an extremely dangerous accident, and unless judiciously treated is almost unexceptionally fatal. It is most frequently met in cases of typhoid fever, a considerable proportion of fatal cases terminating from perforation of one or more of the ulcers, and subsequent hemorrhage or peritonitis. It also occurs more or less frequently in cases of appendicitis and typhilitis or perityphilitis; or may be of traumatic origin. In these cases, until within the past few years, in the period of the great advances in abdominal surgery, almost every hope of a favorable outcome was abandoned. Very occasionally cases were seen where rupture of the intestine had occurred apparently and the patient eventually recovered, but they were few and far between. REUNERT (*Deutsch. Med. Woch.*, 1889) reports several cases of typhoid fever in which the symptoms usually regarded as indicating perforation were present, collapse, great intense pain of a cutting, tearing character, rapid and weak pulse, a fall of the temperature, incessant vomiting, and swelling in the right iliac fossa. Opium and small bits of ice were given by the mouth, and measures directed against the development of peritonitis were practiced, and ultimate recovery took place in each case. In these cases of typhoid fever where the perforation occurs late in the course of the disease, when the patient is weak and the intestinal tissues are more or less degenerated about the perforation, the dangers of a laparotomy are often sufficient to prevent consent to operate, although there seems to be little hope to be gained otherwise. In cases of traumatic rupture or perforation, as in stab wounds of the abdomen, the conditions for operative procedure, the willingness for operative measures for relief, are far more probably obtained; and the open-

ing of the abdominal cavity, the suturing of the injured gut and the other necessary steps of operation, should be unhesitatingly carried out without delay. So, too, it can scarcely be denied, that the better prospects in all cases of perforation, whether traumatic or from intestinal or general disease, lie in the direction of prompt and well-directed operation; but where the conditions are not to be obtained for such measure, the following advice should be rigidly followed out.

HENRY MORRIS, F. R. C. S., LONDON.

In the *International Surgical Encyclopædia*, this writer outlines the treatment of this condition in much the following manner: The injured viscus should be kept absolutely quiet, so that repair may be effected. For a period of at least forty-eight hours no food or fluid should be permitted to pass by the mouth into the canal. After this time small quantities of food at a time, such as jelly, beef-tea or milk, may be taken by the mouth. The neglect of this precaution of preventing the ingestion of food has caused the chances of recovery to be much diminished, since often at the autopsy whiskey, castor oil and other matter are found among the coils of intestines within the peritoneal cavity, having been administered directly after the accident. Small bits of ice or a small piece of pellitory root to suck, or acidulated water painted from time to time upon the faucial membrane, allay the thirst. Stimulants and purgatives should be avoided. The patient should be placed in the recumbent position, with the knees flexed and supported on a pillow. Opium by small doses of some one of its forms, or hypodermic injections of morphia, should be employed to quiet the pain and restlessness; and hot fomentations or poppy-stupes should be applied to the abdomen. The reaction should be aided by external heat as in the ordinary treatment of shock; and if the patient survive the first shock of the injury and peritonitis, or intestinal obstruction ensue, appropriate treatment should be adopted.

Finally, the question of laparotomy is to be considered; and since the above distinguished author laid down these briefly narrated instructions, the surgical ability and daring of the profession has proved time and again that this is by no means the dreaded measure, to be distrusted as it was in former times, but the surest and safest method of action which we possess in complicated as well as uncomplicated cases.

TYPHILITIS · PERITYPHILITIS, APPENDICITIS.

These conditions are so nearly allied in their essential features, in the parts involved, and in the therapeutic measures to be adopted in each, that they may be grouped together under a single heading. Here again modern surgery cannot be mistaken in the clearly defined instruction of to-day that operative means are not to be regarded in the light of a mere *dernier ressort*. Performed early, in the patient's best condition for resistance, performed skillfully and thoroughly, surgical operative interference is followed by a comparatively low rate of mortality, and alone holds forth the hope of entire eradication of the condition, without likelihood of a frequent recurrence. Dr. NORMAN BRIDGE, of Chicago, (*Med. News*, 1890,) asserts that "reliance upon medical treatment is justifiable in acute inflammation in the cæcal region (*i. e.*, appendicitis, perityphilitis or typhilitis) of moderate severity, in the absence of strong evidence of perforation, abscess, peritonitis, or marked tender induration lasting two or three days without some sign of decrease, and of high temperature either continuous or recurring, rapid weak pulse, or rapid, anxious respiration. * * * Reliance on medical treatment is also justifiable in subacute and chronic inflammation where the constitutional symptoms are mild, pain and tenderness slight, and the induration small and not increasing." Surgical interference according to this writer is demanded: (1) "In cases of acute inflammation in the cæcal region with rather protracted high temperature, with distinct induration, sensitive to pressure, without positive evidence of subsidence within two days, or three or four days from the beginning;" (2) "In cases of undoubted severe acute inflammation in the region of the appendix, even though no particular induration is demonstrable, and in cases of acute localized peritonitis having its origin certainly at the appendix, and causing marked constitutional symptoms;" (3) "In that small class of acute cases in which a large sensitive induration develops rapidly, with high fever and general evidence of severe constitutional disturbance;" (4) "In all cases which have advanced to the subacute or chronic stage, with distinct induration of considerable size, or with any induration that steadily increases in size for many days, since in most such cases pus is present;" and finally, (5) "In all cases of undoubted chronic appendicitis with occasional exacerbations, even if no induration is present."

W. T. DODGE, OF MICHIGAN.

This surgeon (*Med. News*, 1891,) states that often the cases presenting the gravest symptoms, with every indication of pus-formation, will recover if free faecal evacuations are obtained. In all cases in which there are no imperative indications for immediate operation, an attempt should be made to open the bowels at once; and for this purpose the writer has found nothing so effectual as full doses of sulphate of magnesium. He places such patients upon tablespoonful doses of this salt every three hours until faecal evacuations are obtained, unless the exhibition should be followed by increased pain. It is also a good plan to give large enemata of warm water. In spite of the opposition to the employment of purgatives in acute intestinal inflammation of this sort, Dr. DODGE has never seen any ill effects, and in several cases has, through their agency, avoided the necessity for operation. The patient should be relieved from excessive pain by opiates, and soothing poultices over the abdomen; and the diet should be restricted to liquids.

SUCKLING (*Brit. Med. Jour.*, 1888,) advises the use of a mixture of sulphate of magnesium and of sulphate of sodium. In moderate doses they simply tend, by producing a large amount of fluid in the intestines, to wash away the scybalous masses. The abdomen should be watched when they are used in these cases, as sometimes the bowel is without sufficient power to expel all the fluid thus produced, and the administration of a stimulant is necessary.

This method of Dr. DODGE's has been warmly commended by Dr. SAUNDBY, of Birmingham, England (*Birmingham Med. Review*, 1891). Dr. SAUNDBY details fifteen cases, seen in his practice during the past six years, of inflammation in the caecal region, of which there was but one fatal one, and that, too, the only case treated surgically. He advocates free evacuation of the bowels, absolute rest in bed, hot fomentations or the ice-bag to the right iliac fossa, and in chronic cases, repeated blisters over the swelling.

HEMORRHOIDS (PILES).

(Consult also Section on Varicose Veins.)

PROF. N. R. SMITH, M. D., BALTIMORE.

According to this distinguished surgeon, if the disease is recent, and the causes manifest, there is but little difficulty. Commence with the administration of a saline aperient. Then, every other day, give sulphur, a heaping teaspoonful, in syrup or milk. Should this be inactive, give the following:

635. R.	Sulphuris loti,	℥ i
	Fol. sennæ pulv.,	℥ j
	Ol. fœnic.,	gtt. xx. M. ut f. pulv.

Give a heaping teaspoonful every other night.

The parts must be bathed three or four times a day with cold water, and especially after stool.

As the indulgence of the appetite in every variety of rich and unwholesome food will have been, in most cases, the principal cause, the patient must be restricted to a simple diet. Let him take animal food but once a day, in small quantity, and without condiments. Boiled onions as an article of food are productive of soft and easy passages. Stewed fruits may be used as a dessert. The patient may exercise moderately on foot, but when at rest had better assume the recumbent, rather than the sitting posture.

This treatment will be sure to relieve incipient cases; but, if not, apply the following unguent:

636. R.	Ung. cetacei,	℥ ss	
	Pulv. gallæ,		
	Pulv. opii,	āā	℥ ss. M.

Apply externally, and introduce within the sphincter a small quantity twice a day.

The following suppositories are very efficient:

637. R.	Butyr. cocœ,	q. s.
	Tannici acidi,	℥ ss
	Opii pulveris,	℥ ss. M.

Divide into ten suppositories. Insert one, morning and night, completely within the sphincter.

But in those cases in which the disease has persisted for some time, the tumors large, inflamed, and irritable, disposed to protrude with spasmodic force, and are returned with difficulty, more active

measures are required. If the bowels are costive, a saline aperient must be given, and an emollient enema, to secure its prompt action.

If the tumors are protruded and strangulated, causing great distress, they must be at once returned, without waiting for the action of medicine. To effect this, apply, for a few moments, cold water, or crushed ice, to repel the blood with which they are engorged. Then, compressing the whole mass with the fingers of both hands, if necessary, press them up within the sphincter. To resist the expulsive efforts which will be provoked, keep up pressure for a few minutes on the anus with the fingers, or better, with a small sponge dipped in ice-water. This pressure our author has sometimes kept up for hours, with a perineal bandage attached before and behind to a split bandage passed over the shoulders. The use of chloroform will sometimes greatly facilitate the reduction.

When the parts are highly inflamed and productive of symptomatic fever, free venesection is demanded. Leeches may also be applied to the verge of the anus, in aid of the lancet. Freezing the part by the spraying apparatus is recommended by some, but is of questionable value. There are many astringent applications which are employed by surgeons in these cases, either in the form of lotion or unguent, such as the acetate of lead, gallic acid, the persulphate of iron, etc.

In most cases of recent origin, the above means will effect a cure, and prudent living will obviate a return.

DR. ROCHARD, OF PARIS.

This practitioner is of opinion that surgical interference should be more and more restrained in hemorrhoids. Very often simple hygienic treatment, conjoined with a suitable regimen, relieves these patients of their infirmities. He has cured a considerable number of such persons by simply advising them to go to stool only in the evening before going to bed, after a cold enema for the purpose of facilitating defecation. After perseverance, defecation takes place regularly, constipation ceases, the hemorrhoidal flux stops, tumescence and procidence no longer occur; the hemorrhoidal tumor diminishing in size and consistence, the normal order of things is re-established.

DR. KASSOBUDSKI.

This writer (*Rev. de Therap. Med.-Chir.*; *Med. News*, 1891) recommends the following treatment of an antiseptic and sedative

nature, consisting of chrysarobin employed with belladonna and iodoform, as useful equally in internal and external hemorrhoids. For the internal hemorrhoids he prescribes:

638. R.	Chrysarobin,	gr. xv	
	Iodoform,	gr. v	
	Extract of belladonna,	gr. viij	
	Cacao butter,	3vj.	M.

Of this make ten suppositories.

One suppository should be inserted into the rectum each day. After five or six hours the pain and the tumor diminish. The treatment may continue for several months without harm.

For external hemorrhoids the author recommends that a solution of corrosive sublimate (1 : 1000), or of carbolic acid (1 : 50) be used as a lotion. After this the following salve may be applied:

639. R.	Iodoform,	gr. v	
	Extract of belladonna,	gr. viij	
	Vaseline,	3j.	M.

The following ointment of a somewhat similar general purpose is credited to AUDHOUI:

640. R.	Extract of belladonna,	āā	gr. xv	
	Extract of thebaïa,		gr. xlv	
	Antipyrine,		3ijss	
	Mercurial ointment,		3j.	M.
	Simple cerate,			

Sig.—To be made into an ointment and applied to the inflamed hemorrhoids.

Rectal injections of warm water are to be employed if there is constipation.

PROFESSOR VERNEUIL, PARIS.

This distinguished authority (*Gaz. des Hopiteaux*, 1887,) advises the treatment of hemorrhoids by forcible dilatation of the sphincter muscles of the anus, claiming a very large percentage of cure by this method. Any case may be subjected to the treatment, whether the piles are large or small, internal or external, recent or long existant, with contracted or relaxed sphincter. Both sphincter muscles should be dilated, and thoroughly dilated, if the measure is to bring about the desired result.

In some cases after this dilatation is performed, the piles disappear and never return, having first become slightly inflamed and then atrophied. For the first several days there may be considerable pain, which may require the employment of opium to allay it.

The complete cure requires in these cases from two to three weeks. In another class there is no pain or but little pain, but the cure is slower. The piles disappear, but if the patient takes the erect posture they return, and require in addition the employment of cold applications and douches.

In external cases where there is prolapsus or paralysis of the external sphincter, VERNEUIL completely paralyzes the muscle by further dilatation, and afterwards treats it by electrical applications to restore its tone.

PROF. D. HAYES AGNEW, M. D., PHILADELPHIA.

641. R. Tincturæ krameriæ, f. ʒj
Mucilaginis ulmi, f. ʒij. M.
For two injections; one to be thrown up morning and night, in ulcerated hemorrhoids.
642. R. Zinci sulphatis, gr. iv
Aquæ carbolici, f. ʒij. M.
For a wash in external hemorrhoids.

PROF. FORDYCE BARKER, M. D., NEW YORK.

The general prejudice against aloes in piles does not apply, according to this writer, to their occurrence in pregnant women. A frequent prescription with him is:

643. R. Pulveris aloës socotrinæ,
Saponis castiliensis, āā ʒj
Extracti hyoseyami, ʒss
Pulveris ipecacuanhæ, gr. v. M.
To make twenty pills. One morning and evening.

When tumors descend they should be replaced, and the following applied twice daily:

644. R. Unguenti gallæ compositi, ʒj
Extracti opii aquosi, ʒj
Liquoris ferri persulphatis, f. ʒij. M.

Dr. BARKER considers castor oil one of the most irritating laxatives to hemorrhoids. He states in reference to *aloës* that OPPOLZER was quite famous in the treatment of piles, and yet his favorite prescriptions contained aloes. When the patient was troubled with constipation, the aloes was associated with quinine; without constipation, with sulphate of iron. For bleeding piles he used:

645. R. Ferri sulphatis, ʒj
Extracti aloës aquosi, ʒj
Extracti taraxaci, q. s. M.
Make sixty pills. One morning and evening, and increase to three a day, if necessary.

WILLIAM ALLINGHAM, F. R. S., LONDON

The bowels should be kept soluble with the following :

- | | | | |
|---------|-------------------------------|-------------------------|--|
| 646. R. | Liquoris magnesii carbonatis, | f. $\frac{3}{4}$ ss | |
| | Potassii bicarbonatis, | ℥j | |
| | Tincturæ sennæ, | f. $\frac{3}{4}$ ij | |
| | Spiritus ætheris nitrosi, | f. $\frac{3}{4}$ ss | |
| | Aquam, | ad f. $\frac{3}{4}$ ij. | |

To be taken every morning, fasting.

The parts to be smeared with

- | | | | | |
|---------|----------------------|----|-------------------|----|
| 647. R. | Extracti belladonnæ, | āā | $\frac{3}{4}$ ss. | M. |
| | Extracti opii, | | | |

Followed by a warm poultice, if there is much swelling.

In *internal bleeding piles*, Mr. ALLINGHAM strongly recommends the curative powers of persulphate of iron. This may be applied in the fluid form, as :

- | | | | |
|---------|---------------------|----|-------------------------|
| 648. R. | Ferri persulphatis, | ℥j | |
| | Glycerini, | | |
| | Aquæ, | āā | f. $\frac{3}{4}$ ss. M. |

Or as an ointment :

- | | | | |
|---------|---------------------|--------------------|----|
| 649. R. | Ferri persulphatis, | $\frac{3}{4}$ ss-j | |
| | Unguenti cetacei, | $\frac{3}{4}$ j. | M. |

This, if carefully applied, causes no pain.

PROF. GREENSVILLE DOWELL, M. D., TEXAS.

- | | | | |
|---------|---------------------|---------------------|----|
| 650. R. | Plumbi acetatis, | $\frac{3}{4}$ j | |
| | Morphinæ sulphatis, | gr. ij | |
| | Argenti nitratis, | ℥j | |
| | Cerati simplicis, | $\frac{3}{4}$ j-ij. | M. |

Apply a small portion at night, after bathing, and replace the piles. A very successful formula.

PROF. G. T. ELLIOT, M. D., NEW YORK.

- | | | | |
|---------|------------------------|----|----------------------|
| 651. R. | Magnesii sulphatis, | | |
| | Magnesii carbonatis, | | |
| | Sulphuris precipitati, | | |
| | Sacchari lactis, | āā | $\frac{3}{4}$ ss |
| | Pulveris anisi, | | $\frac{3}{4}$ ij. M. |

One or two teaspoonfuls at bed time. An excellent saline laxative in hemorrhoids.

PROF. ROBERTS BARTHOLOW, CINCINNATI.

- | | | | |
|---------|--------------------|------------------|---------------------|
| 652. R. | Pulveris aluminis, | $\frac{3}{4}$ ij | |
| | Pulveris camphoræ, | | |
| | Pulveris opii, | āā | $\frac{3}{4}$ j |
| | Unguenti, | | $\frac{3}{4}$ j. M. |

Apply to protruding, bleeding and painful piles.

English authorities advise, in addition to the local treatment, the patient to take internally a drachm of the confection of black pepper twice daily.

The following formulæ are applicable to various complications with hemorrhoids:

653. R. Aluminii et potassii sulphatis, \mathfrak{Dij}
 Fresh and well-washed butter, \mathfrak{zj} .
 Dissolve the sulphate of aluminium and potassium in a little water, and incorporate it with the butter. Grease the hemorrhoidal tumors with this ointment morning and evening.
654. R. Gallæ pulvis, \mathfrak{Div}
 Unguenti benzoini, \mathfrak{zj} . M.
 Useful in hemorrhoids which bleed easily. When the tumors are painful, a half drachm of powdered opium may be added to the ointment.
655. R. Acidi tannici, \mathfrak{zss}
 Unguenti benzoini, \mathfrak{Dij}
 Cerae albæ, gr. viij
 Butyri cocœ, \mathfrak{Div} . M.
 Divide into ten suppositories for hemorrhoidal hemorrhages.
656. R. Extracti kramerizæ, gr. viij
 Morphinzæ muriatis, \mathfrak{zss}
 Stearinæ, \mathfrak{Dij} . M.
 For one suppository in painful hemorrhoids.
657. R. Extracti opii, $\bar{a}\bar{a}$ gr. iss-ijj
 Extracti stramonii, \mathfrak{zij} . M.
 Butyri cocœ,
 Divide into two suppositories. One to be introduced into the rectum at bed-time, to relieve the pain caused by hemorrhoids. Oily enemata and rest.
658. R. Antimonii et potassii tartratis, gr. $\frac{3}{4}$ -ij
 Butyri cocœ, \mathfrak{Div} . M.
 For one suppository, to recall the hemorrhoidal flux. Aromatic fumigations and warm hip-baths should assist the treatment.
659. R. Pulveris iodoformi, gr. xx
 Butyri cocœ, \mathfrak{zj} . M.
 Make six suppositories. Excellent in tenesmus from painful hemorrhoids.

PROF. DUJARDIN-BEAUMETZ, OF PARIS.

660. R. Ointment of poplar, gr. xv
 Extract of the same, gr. v
 Cacao butter, $\bar{a}\bar{a}$ gr. xxx. M.
 White wax,
 For one suppository.

Or:

661. R. Extract of opium, $\bar{a}\bar{a}$ gr. iss
 Extract of stramonium, \mathfrak{zij} . M.
 Cacao butter,
 For two suppositories.

Or,

662. R. Extract of rhatany, gr. viij
 Muriate of morphine, gr. $\frac{1}{2}$
 Cacao butter, ʒj. M.
 For one suppository.

In case of bleeding :

663. R. Fluid extract of hamamelis, aa f. ʒ iss
 Syrup of bitter orange, grt. xx. M.
 Tincture of vanilla,
 Dose, a teaspoonful.

At the same time the following suppository should be used :

664. R. Cacao butter, ʒj
 Styptic powder, gr. iij-v. M.

NOTES ON REMEDIES.

Aloes, formerly thought irritating, are now highly recommended by Professors BARKER and OPPOLZER. (See page 469.)

Alumen. A piece of alum made into a smooth suppository will sometimes be efficient in bleeding piles. Solutions and ointments containing it are also useful.

Aqua. To relieve the heat and itching of blind piles, bathing with cold water, and enemata of it, are much esteemed.

Argenti Nitras is used by Professor DOWELL (F. 650.) When the piles are protruded, inflamed and tender, the gentle application of the solid nitrate often proves highly beneficial.

Beladonna in ointment is a soothing application :

665. R. Extracti belladonnæ, ʒj
 Unguenti spermaceti, ʒj. M.
 For local use.

Bismuth. The subnitrate in powder, or the *liquor bismuthi* (B. Ph.) for an injection, has been very highly extolled.

Carbolicum Acidum. The hypodermic injection of carbolic acid was the secret of a somewhat famous so-called "immediate" pile cure. The proportions are :

666. R. Acidi carbolici crystal.,
 Olei olivæ, partes equales.
 For hypodermic use.

Dr. A. J. ROE (*Michigan Medical News*, February, 1878,) says the following formula, if used with care, causes little or no pain in any case.

667. R. *Acidi carbolici* (Calvert's No. 1), f. $\frac{3}{4}$ ss
 Iodoform, grs. xxx
 Balsam Peru, f. $\frac{3}{4}$ j
 Camphorated phenol, f. $\frac{3}{4}$ ijj. M.
- Inject 2 to 6 drops, according to size of tumor. Inject but one or two tumors at once.

When the piles are internal, and not readily brought down, a Sims' speculum is employed to uncover them. The operator generally takes only one pile at a time, always selecting the uppermost first, and injects into its interior from four to six drops of the carbolicized oil, or rather the oleized carbolic acid. The injection turns the pile white, probably coagulates the blood in its vessels, and results in its shrinking away without the inflammation being severe enough at any one time, as a general thing, to prevent the patient from attending to his business. The well-known power of carbolic acid to act as a local anæsthetic, antiphlogistic and anti-suppurative, favors the progress. When the irritation of the first injection has measurably subsided, another pile is attacked in the same way; and as the patient cannot see the syringe, he supposes that he has not been subjected to any "operation," which is a great satisfaction to him. Dr. J. M. MATTHEWS, of Louisville, (*Trans. Ky. State Med. Soc.*, 1878,) gives the following rules: 1. Use the acid only in the smaller tumors. 2. Should it be used in a large tumor, inject once only in one portion, and wait several days, and then inject another portion. 3. Use the smallest amount possible in injecting, say one to three drops of the mixture of sweet oil and carbolic acid, equal parts, or a stronger solution.

The measure was widely tried by surgeons the world over, but for one or another cause has been almost entirely abandoned for other and more certain means.

Copaiba. In doses of gtt. x-xv, thrice daily, Prof. GROSS says no other internal remedy will prove so efficient as this, in the milder cases of the malady, and after the secretions are regulated. Its mode of action is unknown.

Creosotum in ointment is a local application.

Cubeba. In chronic hemorrhoids, cubebs have been employed with asserted advantage.

Ergota. Dr. G. W. SEMPLE, of St. Louis, has cured some obstinate cases of piles by injecting into the rectum, after every discharge, the following enema:

668. R. *Extracti ergotæ fluidi*, f. $\frac{3}{4}$ ss
 Aquæ, f. $\frac{3}{4}$ ss. M.
- For one enema.

The ergot has been injected into the pile by means of a hypodermic syringe with alleged success. *Ergotin* in suppositories, gr. v, night and morning, is often of great service in bleeding piles.

Ferri Perchloridi Tinctura has been injected by a hypodermic syringe into the pile, gtt. x-xx at a time. The operation is efficient, but painful.

Ferri Persulphas is an admirable styptic applied in the form of an ointment. (F. 648, 649.)

Galla. Ointment of galls is an old and popular remedy :

669. R.	Pulv. gallæ,	℥ ij	
	Pulv. opii,	gr. x	
	Adipis,	℥ j.	M.

For an ointment.

Or :

670. R.	Unguenti gallæ comp.,		
	Extracti belladonnæ,	āā	partes equal. M.

Bathe the parts with hot water rapidly. (YOUNG.)

Glycerinum. Dr. DAVID YOUNG, of Florence, in the *Practitioner*, January, 1878, reports five cases in which permanent benefit followed the internal administration of glycerine in from two to three-drachm doses in water, night and morning.

Hamamelis. The witch-hazel is singularly useful in piles, both to check the bleeding and heal the diseased veins. It is employed both as lotion and injection, and also should be taken internally, (℥ ij of the tincture three or four times a day, larger doses producing severe headache.) Dr. EDWARD R. MAYER states that the continued use of this substance in small doses (gtt. ij-iv of the concentrated tincture) will frequently cause the largest hemorrhoids to contract and disappear. When there is much infiltration of the parts, the local use of the decoction or of an ointment prepared from the extract of the plant will add much to the treatment. (*Hints on Specific Medication*, 1876).

Hydrargyrum. Calomel ointment, or dusting with calomel in the acute stage, is a soothing application.

Iodoformum, in ointment, is efficient to relieve the local distress.

Krameria is used by Prof. AGNEW, (F. 641,) and others. It has a specifically excellent effect in rectal diseases.

Magnesia is an irritant to piles, and should not be used as a laxative when they are present.

Manna. Dr. A. E. HULL, of New York, has derived great advantage in internal piles from the following :

671. R.	Mannæ,	℥ iij	
	Aquæ bullientis,	q. s.	

To dissolve to the consistency of cream. Then add

	Hydrargyri sulphureti nigri,	℥ ij	
	Rhei pulveris,	q. s.	M.

Make a mass; divide into small suppositories; one, anointed with olive oil, every night.

Nitricum Acidum as a topical application has been often used, but is excruciatingly painful.

Opium in some form is added to many pile ointments as an anodyne. In the severe spasm and tenesmus which occasionally occur after operation, its free administration is imperative.

Piper Nigrum in considerable quantities will relieve piles. "Ward's paste," *confectio piperis nigri*, is popular in England.

Pix Nigra. Dr. R. A. VANCE, of Ohio, recommends :

672. R. Picis nigræ,
Magnesiæ,

3j
q. s. M.

For 30 pills. Two after each meal.

In quite a number of cases these pills, in connection with other measures of a hygienic character, produced marked relief where the suffering had previously been almost unendurable.

Common pitch ointment is one of the best applications in the chronic stage.

Plumbi acetis is a valuable astringent. (F. 650.) In solution, or as Goulard's extract, diluted, it soothes the irritation. When there is pain in the back, due to piles, the application of lead plaster will often relieve it.

Podophyllin. Small doses of podophyllin, gr. $\frac{1}{10}$, twice daily, have been recommended by Dr. A. HAZLEWOOD, of Michigan. (*Michigan Medical News*, June, 1878.)

Potassii Bromidum, one part to five of glycerine, has proved useful as a local application to ease the pain and spasms of hemorrhoids.

Rhamnus Frangula. Dr. J. S. UNZICKER, of Cincinnati, says this remedy in the cure of hemorrhoids certainly stands unrivaled, and holds the same rank in chronic piles as potassii tartras does in those of a more acute or inflammatory form. Both, when given in their proper place, quickly remove all portal congestion, constipation, and all that disagreeable feeling connected with this complaint. The frangula ought to be given at bed time, either as an infusion or decoction— $\mathfrak{z}\text{ij}$ — ij to four ounces of water—or from one to two teaspoonfuls of Squibb's fluid extract. Thus given, it acts more mildly and with less annoyance to the patient than when given in the morning. If, however, the above dose should produce more than one or two soft passages, the dose must be reduced, and purging avoided, as the latter would only aggravate the trouble and do no good.

Rheum is one of the most appropriate laxatives in this complaint. About gr. x may be chewed nightly.

Ricini Oleum is an irritant of the rectal vessels, and should not be used.

Senna is an appropriate laxative.

Stramonium, in the form of cataplasm, is often employed with advantage in inflamed hemorrhoids.

Sulphur is a popular remedy :

673. R. Sulphuris, Mellis,	āā parts equal. M.
For an ointment in internal hemorrhoids.	

It is also an excellent laxative for habitual use.

674. R. Sulphuris loti, Confectionis sennæ,	gr. v-x 3j. M.
This amount every morning.	

Tabacum is often added with great advantage to ointments for painful hemorrhoids. Ordinary snuff may be used, ʒj-ij to ʒj of ointment.

Tannicum Acidum is a more powerful astringent than gallic acid.

675. R. Acidi tannici, Aquæ frigidae,	gr. xx-xxx f. ʒvj. M.
To be injected into the rectum for bleeding piles.	

Teucrium Scordium. The powdered leaf of the wild germander is asserted by Dr. LEBEL, of Paris, to exercise a specific influence on hemorrhoids, relieving the pain, irritation, and especially the pruritus. Dr. JOHN H. BRINTON, of Philadelphia, has found it to soothe the latter in a marked degree. The dose is gr. xv-xx of the powder thrice daily in water.

Ulmus. In the *Medical Herald*, 1879, Dr. E. J. KEMPFF observes that suppositories made of powdered slippery-elm bark and warm water, (sufficient of the latter to make a sticky mass,) medicated with fluid extract of belladonna or ergot, recommended themselves in rectal diseases and for piles.

Verbascum Thapsus. The mullein, as a remedy for painful hemorrhoids, is well spoken of by Dr. EDWARD R. MAYER, and others. It is administered both by enema and the mouth. The patient drinks thrice daily a wineglassful of the infusion, and takes an injection of the same on rising in the morning. The infusion is demulcent, and is a mild and agreeable laxative. The fluid extract, in drachm doses, has the same properties.

Zinci Valerianas, in doses of gr. j-iss, internally, has been found singularly efficient by Dr. C. DEADERICK. (*Nashville Journal of Medicine and Surgery*, March, 1879.)

FISSURE OF THE ANUS.

PROF. CHARLES B. KELSEY, OF NEW YORK.

In a clinical lecture Dr. KELSEY recently (*Med. News*, 1890,) made the following remarks:

"The usual way of curing this affection is to dilate thoroughly the sphincter. This is radical, but in common charity it demands the administration of an anæsthetic, and conveys to the patient all the horrors of an operation. To show you that this is not necessary, I will inject a few drops of cocaine under the ulcer, entering the needle in the skin, and passing it forward till its point is at the level of the centre of the sore. After time has elapsed for this to take effect, a speculum is introduced, more to show you exactly the extent of the disease than because it is necessary for the operation, and a sharp knife is drawn longitudinally through the fissure. The extended tag is then cut off with the scissors; there is free bleeding for a moment, easily controlled by pressure, the speculum is withdrawn, and the patient given some compound licorice powder to take nightly, and told to report day after tomorrow.

"In making this incision the only point is to remember to enter the knife above the margin of the ulcer and end the cut below it, taking care to divide those fibres of the external sphincter which form the floor of the fissure. No division of the whole body of the muscle is necessary.

"This is an operation any of you may practice in your office; it is free from danger, and it accomplishes, when properly done, all that can be gained by forcible dilatation, the patient being relieved of the characteristic pain of the affection from the moment of the incision."

DR. HENRY HARTSHORNE, OF PHILADELPHIA.

This writer believes that most cases, even of long standing, may be cured without an operation. He has especial confidence in *col-lodium*, to which one-fiftieth of glycerine has been added to lessen its constricting effect. This may be painted upon the part with a camel's-hair pencil; it makes an excellent artificial cuticle. When the case is obstinate, the surface of the fissure should be touched lightly with nitrate of silver or sulphate of copper. Suppositories of opium or belladonna may be introduced after defecation, to relieve pain. Forced dilatation of the sphincter by the two thumbs

of the operator, as recommended by Dr. VAN BUREN, may be resorted to if these means fail.

Various surgeons have highly recommended *rhatany*, *krameria*, in the form of tincture, or an ointment made of the extract with lard (5j-ij to 5j), as a very valuable application both in fissured and prolapsed anus.

Dr. CREQUY, of Paris, treats fissure of the anus by chloral. His procedure is as follows: Charpie, soaked in a two per cent. solution of chloral, is inserted just within the anus, daily attention being of course duly paid to the regularity of the bowels. In the two cases recorded as having been so treated, a cure was effected within a fortnight.

After the operation for anal fissure by dilatation, it is the custom with most surgeons to touch the sides of the fissure with a caustic, in order to bring about healthy granulations. To effect this, probably the most effective is strong *nitric acid*. As the application is necessarily very painful, the patient should be placed under ether. Chloroform should not be used, as it is said there is a peculiar intolerance of it in this complaint.

Dr. ERSKINE MASON, of New York, believes (*Medical Record*, November, 1877,) that in young subjects, and where the fissure is of recent origin, we can in many cases succeed in curing them without an operation. The treatment is to keep the bowels in a soluble condition, and make use of some astringent and sedative application. A very common prescription for this purpose contains zinc or stramonium ointment in combination with belladonna or opium. This plan of treatment is often followed by complete relief.

There are many persons who are remarkably timid when anything like operative interference is suggested, and we can relieve a goodly number of such cases by penciling the fissure to its bottom with a fine point of nitrate of silver, or with nitric acid. These applications relieve the pain, because they destroy the little filament of nerve which is exposed in the fissure.

In those cases in which the fissure has attained some size, we can always with the probe find one spot which is excessively tender, and when the nerve exposed at that point is destroyed by the use of any cautery, or by stretching the sphincter, the patient will be relieved.

Dr. HAMON states in *Le Practicien*, 1879, that instead of employing forcible dilatation, he applies to the fissure, with a camel's-hair brush, a solution consisting of one part of chloroform or two parts of

alcohol. Two or three applications, at intervals of two or three days, usually suffice to effect a cure. The first application is very painful, but each subsequent one becomes less so.

M. TARNIER, PARIS.

This surgeon takes small pledgets of cotton-wool, sprinkles them with powdered iodoform, and then introduces them into immediate proximity to the fissure. They produce a rapid and gratifying effect.

DR. ROLLET, PARIS.

676. R.	Glycerini,	f. $\frac{3}{4}$ ss	
	Amyli,	$\frac{3}{4}$ ii	
	Zinci oxidi,	$\frac{3}{4}$ j.	M.

Mix the glycerine and starch, warm gently in a porcelain capsule, stirring until the mass jellifies, and then add the oxide of zinc.

This glycerite is particularly advised by Dr. ROLLET in the fissures of the anus which exist in persons who have had chancres. These fissures cicatrize very slowly, because of the constant contact of the faecal matter. Hence they should be cauterized from time to time with nitrate of silver, and afterwards dressed with the glycerite of oxide of zinc.

677. R.	Acidi tannici,	gr. xv	
	Glycerini,	f. $\frac{3}{4}$ ss.	M.

A tent immersed in this solution is to be introduced, morning and evening, into the rectum.

As the glyceritum acidi tannici of the *United States Pharmacopæia* is four times the strength of this solution, it may be ordered in its place, diluted with three parts of glycerine.

678. R.	Hydrargyri chloridi mitis,	gr. iv	
	Adipis,	$\frac{3}{4}$ j.	M.

This is a useful pomade in fissures of the anus of but slight extent. The affected part is to be washed with warm water, and the ointment lightly applied without friction.

Dr. CARRERE, of Ghent, applies carron oil, several times daily, and claims to cure in eight or ten days. (*An de la Soc. de Med. de Gand*, 1878.)

WILLIAM ALLINGHAM, F. R. S., LONDON.

This surgeon states that he has performed many cures without other treatment than the following ointment:

679. R. Hydrargyri subchloridi, gr. iv
 Pulveris opii,
 Extracti belladonnæ, āā gr. ij
 Unguenti sambuci, ʒi. M.

To be applied frequently; the bowels to be kept soluble.

An occasional *light* touch with the nitrate of silver is useful.

PROF. VELPEAU, PARIS.

680. R. Unguenti hydrargyri, ʒijss
 Unguenti benzoini,
 Cereæ albæ, āā ʒj
 Butyri cocœæ, ʒiv. M.

Divide into twelve *suppositories*. These are particularly useful in venereal fissures.

FISTULA OF THE ANUS.

PROF. GUYON, OF PARIS.

GUYON (*London Med. Recorder*, 1890,) regards palliative treatment judicious in fistulæ which do not give rise to severe or distressing symptoms, and that operations are not necessarily indicated. The stools should be watched and kept soft and regular, and the patient must practise the utmost cleanliness. Internally the following prescription may be given:

681. R. Potassii bromidi, gr. lxxv
 Ferri et ammonii citratis, gr. iv
 Syrupi aurantii, f. ʒij. M.

Sig.—A tablespoonful twice daily.

After each passage the following suppository should be inserted into the rectum:

682. R. Iodoformi, gr. ij
 Extracti belladonnæ, gr. ʒ
 Butyri cacao, q. s.

Sig.—One suppository.

A mode of treatment of anal fistula without operation is by means of the *elastic ligature*. Its advantages are: 1. There is little or no pain in connection with the operation. 2. There is no hemorrhage. 3. Recovery is rapid. 4. The patient is not confined to bed, but may go out at once if he like. 5. The most delicate person may be operated upon. 6. Anæsthetics are not required. 7. There is very little suppuration. 8. And lastly, even when the operation

has been begun with the bistoury, it may be bound up with the elastic ligature. Once the ligature is in place, the two ends, first passed through a little ring of lead, are put on the stretch. At the maximum of tension, the ring is crushed with a stout pair of pincers, in such wise that the fistula is included, strangulated in fact, within an elastic noose, and the tension maintained until the ligature cuts through the parts and is discharged.

Another method is by *iodine injections*. This plan has been known for a number of years, but it is hardly mentioned by surgical authors. It has, however, been successful in a number of cases, when adopted with proper precautions. Dr. E. C. HUSE, of Illinois, who reports very satisfactory results (*Medical Record*, March, 1871,) recommends that the iodine should be employed in the form of a *saturated ethereal* tincture. Its advantages over the officinal or alcoholic tincture are not only that it is *stronger*, and thereby excites inflammatory adhesion in the walls of the tube, but the ether evaporates almost momentarily, and a pure coating of iodine is left along the fistulous track, which doubtless encourages absorption. The instrument used is an ordinary hypodermic syringe, with small silver canula, which may be readily bent to correspond with the direction of the sinus.

The mode of operation is as follows: After exploring the fistula with a *very small* probe (the ordinary probe of the pocket-case is far too large,) after determining its course and extent, the patient is to be placed in a good light and a glass rectal speculum introduced, with its fenestrum opposite the internal orifice of the fistula. The canula is now bent to the required curvature and introduced, when the syringe, filled with tepid water, is screwed on, and the surface thoroughly cleansed of all extraneous matter. This step is not only essential, but serves to allay timidity or dread of the subsequent operation.

Next, by pressure, the fistula in its whole extent should be dried out, and the iodine will thus come in direct contact with its walls. Introduce now into the speculum a quantity of carded cotton. This will absorb any of the iodine which might otherwise be injected *through* and injure the mucous membrane, and by its characteristic stain will serve to show the completeness both of the fistula and of the operation.

The canula may now be re-inserted, and the injection made. It should be done *slowly*, and at the same time the canula gradually

withdrawn. Every part of the surface will thereby be reached.

The operation, which is not very painful, should be premised with a cathartic and followed with a full anodyne, as ordinarily with the time-honored knife method. The patient need not be confined to his bed or room, even for an hour.

PROLAPSUS OF THE ANUS.

MR. FREDERICK TREVES, ENGLAND.

MR. FREDERICK TREVES, of London (*London Lancet*, 1890) thus reviews the methods of treatment of prolapse of the rectum: In the first place subcutaneous injections are made into the ischio-rectal fossa of solutions of ergotin, nux vomica, or carbolic acid. There is considerable pain and spasm of the sphincter after these injections, and as a rule the measure is tedious in its employment and is uncertain in its results. A number of practitioners have employed fuming nitric acid by local application to the prolapsed bowel after which the gut is replaced, the anus plugged, and the bowels are quieted by opium, so that for some days no passage takes place. Mr. TREVES characterizes the operation as but little less than barbarous. It aims to produce a cicatrix of such extent as will cause the complete contraction of the mucous membrane. It is an excruciatingly painful procedure, is apt to be followed by sloughing and severe proctitis. Stricture of the bowel is by no means an unlikely sequel, and fatal hemorrhages have occurred. But little superior to this is the use of the actual cautery to the mucous membrane of the prolapsed bowel, or the removal by the clamp and cautery of linear folds of the mucous membrane. Serious accidents have occurred after the latter practice, Mr. TREVES stating that in its weakened condition the bowel after this operation has been known to give way and coils of small intestines have escaped. KLEBERG proposed that the prolapse be removed by means of elastic ligatures, aided by applications of chloride of zinc, a proceeding Mr. TREVES regards as unnecessarily severe, complicated and dangerous.

The writer, after detailing these methods, states his preferences and reasons for preferring the excision of the prolapse by the knife, substituting a clean incision for the burnt and gangrenous surfaces

obtained by the above methods. The dangers of hemorrhage, of septic absorption and of subsequent stricture are much reduced by the method; and the primary danger of the operation is but little.

PROF. LANGENBECK, OF BERLIN.

This eminent surgeon states that he has treated prolapsus ani "with astonishing success" by hypodermic injections of a solution of ergotin (five to fifteen parts to one hundred of distilled water.) He replaces the bowel, and inserting the point of the syringe about three centimetres in depth in the cellular tissue, throws in from one to two grains of ergotin. This should be repeated every three or four days for three or four weeks, any hard fæcal masses in the bowels being first removed by a simple injection.

Much may be done in prolapsed anus by mechanical measures, as wearing a pad and T bandage; by using an air-dilated gum-elastic pessary; by avoiding low stools and straining during defecation, etc.

Prof. STROMEYER says many cases may be relieved by warm baths and moderate doses of magnesia.

PROF. JOHN VON CLEVELAND, GALWAY.

683. R. *Liquoris bismuthi et ammonii citratis* (Br.), f. $\frac{3}{4}$ ss
Amyli solutionis, f. $\frac{3}{4}$ ij. M.

Use as an enema in prolapsus ani. It should be given after the patient is in bed, and the bowel returned.

Another:

684. R. *Tincturæ ferri chloridi*, f. $\frac{3}{4}$ j
Aquæ destillatæ, f. $\frac{3}{4}$ j. M.

To be divided into five injections. One to be thrown up the rectum three times daily.

STRICTURE OF THE RECTUM.

DR. S. GANT, OF KANSAS CITY.

Dr. GANT recently read before the Medical Society of the Missouri Valley a paper upon stricture of the rectum, in which the following methods of treatment are mentioned (*Med. News*, 1891).

The treatment of stricture should be local, constitutional, medicinal and operative. Has the patient syphilis? If there is reason to suspect this taint, the patient should be at once placed upon the

mixed treatment of iodide of potassium and mercury. Mercurial ointments may be used locally, but will prove rather irritating if there be any ulceration.

Careful attention to the diet should be paid, and milk in conjunction with other liquid or semi-liquid food should constitute the bulk. "The bowels should move at least once a day. The mineral waters, Rochelle or Glauber's salts, will be sufficient in most cases to cause an action. Purgatives are contra-indicated because of the straining and tenesmus which accompanies their action. The general health should be looked after, and cod-liver oil used if indicated. The most important thing, however, is rest in the recumbent position and to allow the patient to walk as little as possible." * * *

"One of the best ways of applying medication to a stricture is by means of the pile-pipe which has a large base, gradually tapering toward the apex, and perforated with numerous holes." The reservoir is filled with ointment, and the screw in the base is then turned and the remedy pressed out on all sides through the perforations. A favorite prescription of ALLINGHAM'S is:

685. R.	Bismuthi subnitratis,	℥j	
	Hydrargyri subchloridi,	℥ij	
	Morphine,	gr. iij	
	Glycerini,	℥. 3 ij	
	Vaselini,	℥j.	M.
Sig.—Use in pile-pipe.			

"This is a sedative application valued by the writer. The subacetate of lead, opium and belladonna, in the form of suppositories, will be found serviceable. All sorts of astringents may be used; zinc, copper and nitrate of silver will all do good in some cases; occasionally fuming nitric acid is beneficial. By these means, combined with gentle dilatation, the life of a patient may in many cases be prolonged in comfort." Hot fomentations are used to control abdominal pain.

The various surgical procedures at our command are the following: Dilatation, division, colotomy and proctotomy or rectotomy. In operating by dilatation, soft rubber bougies should be used. "The dilatation should be intermittent and not constant, because of the ease with which the rectum becomes irritated and peritonitis follows the application. Dilatation may be aided many times by nicking the edge of the stricture before passing the bougie. The one selected should be of a size to pass the stricture readily with-

out much pain; and if there is any doubt as to the proper size to use, authorities say choose the smaller, the object being to cause absorption by gentle irritation." Dr. GANT proceeds from this point to describe the operations by rapid divulsion, colotomy and proctotomy, which are not sought to be included in the present abstract.

PRURITUS OF ANUS.

WILLIAM ALLINGHAM, F. R. S, LONDON.

The patient should renounce coffee, spirits, condiments and rich food. The parts should be washed at night with warm water and yellow soap. The bowels should be kept soluble with gentle salines. On retiring, the following ointment should be applied freely:

686. R.	Hydrargyri chloridi mitis, Unguenti sambuci,	gr. x 3j.	M.
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Or this lotion:

687. R.	Sodii boratis, Morphine muriatis, Acidi hydrocyanici diluti, Glycerini, Aquæ,	3ij gr. xvj f. 3ss f. 3ij ad f. 3viij.	M.
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Other surgeons employ:

688. R.	Aluminii nitratis, Aquæ destillatæ,	gr. vj f. 3j.	M.
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For a lotion.

689. R.	Tincturæ digitalis, Aquæ,	f. 3iij f. 3viij.	M.
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For a lotion.

The *unguentum opii*, or the *unguentum gallæ cum opio*, or a solution of carbolic acid in lime-water, are soothing local applications.

DR. JOHN H. PACKARD, OF PHILADELPHIA.

This surgeon (*Medical and Surgical Reporter*, March, 1880,) states that he had a case of this kind which baffled all his endeavors, until he used the following prescription:

690. R. Camphoræ, Chloral hyd., Ung. petrolei,	aa 3ss 3vij.	M.
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For local use.

This gave immediate relief, and a few applications only were needed; the itching was permanently allayed.

Repeated experiences with it since that time have satisfied him of its efficiency in very many of these cases.

WOUNDS OF THE ABDOMEN.

In this place should be insisted upon, even if it is beyond the purpose of this volume to describe, the supremacy of active operative interference in wounds of the abdomen over the older methods such as are detailed in this section. With the advent of aseptic surgery came a class of operative surgeons whose skilled daring took ready advantage of the newer principles of surgery, and fearlessly and successfully treated intestinal wounds and lesions, formerly left in despair of attaining any result. The modern surgeon explores the wounded abdomen, sutures the torn intestines, treats the injured viscera almost as readily as if they were surface wounds, and with a measure of success almost as great as in the older surgery of the superficialities.

UNITED STATES ARMY.*

To restrain inflammation within salutary limits in abdominal wounds, absolute *rest* is the most important indication, the patient being suffered neither to be moved nor to move himself; therefore he should be permanently treated as near as possible to the spot where he has received the injury. "Every rod such patients are transported adds to the formidable peril they have already to encounter." Food and drink, save a little ice or cold water, are to be absolutely interdicted at first, and then the blandest nutriment, such as milk, may be sparingly allowed. The early employment of purgatives must also be absolutely forbidden. The *position* of the patient is of importance. If there is a single wound, the patient should lie in that posture that will place the orifice downward, and favor the approximation and adhesion of the viscera to its edges. If the ab-

* *Medical and Surgical History of the War of the Rebellion.*

domen is perforated, it will usually be best to make the orifice of exit dependent. When there is evidence that a viscus is wounded, the parietal wound must always be left open, except in cases in which enteroraphy is practiced. Local depletion and fomentations, often employed, are of no value; but there is reason to believe that extended and protracted applications of ice over the entire abdomen occasionally exert a decided influence in moderating the inflammation. The majority of surgeons esteem moderate compression by a circular bandage useful. If the stomach and small intestines are divided, there is no reasonable presumption that fæcal extravasation, and consequent hyper-acute generalized peritonitis, can be averted, unless by operative interference. Under these circumstances, therefore, the surgeon should enlarge the wound, carefully cleanse the cavity, and unite the solutions in continuity in the wounded viscus by sutures.

Of all drugs, *opium* is the only one which need be mentioned. It is the main resource to secure the indispensable rest of the bowels and nervous system. Its alkaloids may be administered hypodermically, or, as an excellent means in this class of injuries, by suppositories. The *dict* must be liquid in character, concentrated and very sparing. The use of mercury in any form is needless and dangerous. Blood-letting is wholly unnecessary.

DR. J. Q. A. HUDSON, OF CINCINNATI.

This writer, in a careful study of the indications for treating *incised wounds of the stomach*, such as not unfrequently occur from a stab, (*Clinic*, January, 1872,) states that the first step is to apply a suture to the gastric wound, if it is easily accessible through the parietes, and the cut is more than half an inch in length; if less than this, it is not necessary, and it is rarely or never necessary to enlarge the external wound in order to reach that in the gastric parietes. When the latter cannot be reached, and no effusion exists, the external wound should be closed by suture, and adhesive strips, compresses and bandages applied, to aid in securing, as far as may be, an immobility of the parts. Where there is an effusion in the neighborhood of the wound, the external wound, if it has been closed, should be opened, and, by position and moderate compression, an attempt be made to cause an escape externally of the foreign matters. To effect this, it may be necessary to enlarge the external wound.

In regard to *position*, the patient should be placed so that he can

secure absolute rest, with the abdominal muscles fully relaxed; and if practicable, the stomach wound should be kept within the lips of the parietal wound, or near to it, so that, if effusion occurs, there may be an opportunity for egress of the effused liquids.

The *diet* is of the utmost importance. There should be absolute abstinence from all forms of food by the mouth for several days. Nutritive injections may be given, and thirst be quenched by the very limited allowance of small pieces of ice. When the patient commences to take food, it should be in a concentrated liquid form. Very gradually, and in very small quantities, morphia hypodermically, or opium in suppositories, is demanded to allay pain and nervous agitation. Enemas may be used, if necessary to secure alvine evacuations. Dr. HUDSON adds that general and especially local blood-letting may be demanded to combat inflammation (a recommendation of doubtful utility, according to military experience).

XIII. LESIONS OF THE URINARY SYSTEM.

Cystitis (Acute and Chronic)—Dysuria (Strangury, Retention of Urine, Irritable Bladder)—Enuresis (Incontinence of Urine)—Floating Kidney—Prostatic Diseases—Stone of the Kidney and of the Bladder (Lithiasis, Gravel)—Injuries to the Kidney and Bladder.

CYSTITIS (ACUTE AND CHRONIC).

DRS. VAN BUREN AND KEYES.

These writers state that the treatment of acute cystitis from any cause is always the same. It rests firmly on the tripod of: 1. Rest in bed, with elevation of the pelvis. 2. Alkaline diuretics. 3. Anodynes to relieve pain and tenesmus. To these may be added local application of heat. Asparagus, salt, coffee and lemon juice, should be avoided. Of the alkalies, citrate of potash, gr. xx-xxx three or four times a day, is perhaps the best. It may be alternated with bicarbonate of sodium, acetate of potassium, or liquor potassæ. The alkali may be given in carbonated water or flaxseed tea. Buchu may be combined in infusion with the latter. The rectum should be kept empty by the daily use of a hot enema.

The following is quoted in *Med. News*, 1890, as to the treatment of acute cystitis. A suppository is made according to the following prescription and passed well into the bowel:

691. R.	Iodoform,	gr. ij	
	Extract of belladonna,	gr. ss	
	Cacao butter,	gr. xlv.	M.

Night and morning the rectum should be injected with hot water. If any inflammation occurs or is present a grain of terpine or of salol may be given in pill twice daily.

DR. NIEMEYER.

Acute Catarrhal Cystitis.—In most cases of this complaint, according to this author, hot poultices upon the abdomen and general warm baths, suffice to relieve the symptoms and to bring about a favorable

termination. The patient should drink Seltzer, Wildruger, Fachinger, or Galinauer waters, or soda-water, or lime-water mixed with equal parts of milk. The semina lycopodii have a peculiar reputation as a remedy.

692. R. Lycopodii seminum, ℥^{ss}
 Mellis despumati, ℥^{iss} M.
 Make an electuary. A teaspoonful every two hours.

Camphor is valuable where the complaint arises from the abuse of cantharides. Dover's powders, in small doses at bedtime, is a most efficient remedy against pain and vesical tenesmus. The more the pain abates, and the more copious the admixture of mucus and pus in the urine, so much the more urgently are the astringents indicated. The astringent most commonly employed is a decoction of the folia uvæ ursi (℥ss to ̄vj, a tablespoonful every two hours). The continued use of *tannin* is still more efficacious.

DR. G. W. SEMPLE, OF VIRGINIA.

In the *Virginia Medical Monthly*, June, 1877, this writer records striking success in cystitis with:

693. R. Atropinæ sulphatis, gr. j
 Acidi carbolicī, gtt. xij
 Aquæ destillatæ, f. ̄viij. M.
 Forty to sixty drops of this in half an ounce of water as a rectal injection, twice a day.

It uniformly and immediately arrests the frequent strangury and painful micturition, gradually checks the mucous and sanguineous discharges, and relieves the supra-pubic pain with the cystic inflammation. When the urine is alkaline, Mettauer's nitro-muriatic acid mixture is given to correct it; and when it is so acid as to irritate, the acidity is corrected by antacid remedies, of which the bicarbonate of potassium, with subnitrate of bismuth, is generally preferred, because of the tonic effect of the bismuth, and its very soothing effect on the mucous surfaces of the urinary organs.

PROF. GEORGE JOHNSON, F. R. S., LONDON.

The value of an exclusive *milk diet* in cystitis has recently been spoken of by this writer. (*Lancet*, December, 1876.) In acute cases and in many chronic cases this brings prompt relief to the symptoms, and in a short time a cure. The urine is largely diluted and rendered mild and unirritating, and thus the coats of the blad-

der revert to their normal condition. The milk may be taken cold or tepid, and not more than a pint at a time, lest a large mass of curd, difficult of digestion, form and collect in the stomach. Some adults will take as much as a gallon in the twenty-four hours. With some persons the milk is found to agree better after it has been boiled, and then taken either cold or tepid. If the milk be rich in cream, and if the cream disagree, causing heartburn, headache, diarrhœa, or other symptoms of dyspepsia, the cream may be partially removed by skimming. One reason amongst others for giving the milk, as a rule, unskimmed—that is, with the cream—is that constipation, which is one of the most frequent and troublesome results of an exclusively milk diet, is to some extent obviated by the cream in the unskimmed milk. As a rule, it is unnecessary, and therefore undesirable, to add bread or any other form of farinaceous food to the milk, which in itself contains all the elements required for the nutrition of the body. When the vesical irritation and catarrh have passed away, and the urine has regained its natural character, solid food may be combined with the milk, and thus a gradual return may be made to the ordinary diet, while the effect upon the urine and the bladder is carefully watched.

Dr. GEO. N. MONETTE, New Orleans (*American Practitioner*, 1878), reports very favorably of this method. He gives the following prescription:

694. R.	Quininae hypophosphitis,	3 ^{ss}	
	Ferri pyrophosphatis,	3 ^{ss}	
	Pulv. ergotini (or Bonjean's),	gr. xv	
	Ext. nucis vomicæ,	gr. vij.	M.
Ft. pil. No. xv. One to be taken every four hours.			

The above, in addition to the skimmed milk, has invariably been successful in a comparatively brief period of time.

PROF. F. GUYON, PARIS.

Prof. GUYON (*Ann. des Mal. des Org. Gen.-Urin.*, 1892,) states that there are three things to be taken into consideration if one desires to test the efficacy of a remedy—the frequency of urination, pain, and the purulence of the urine. Further, the capacity of the bladder should be inquired into. He recommends bichloride of mercury for the treatment of cystitis, stating that it is especially valuable in causing the disappearance of all pain, although the pus and frequent desire to urinate remain. It may be used either in the usual

way of washing out the bladder, or may be instilled into the viscus, the author preferring the latter method, unless the bladder is in such a condition that distension does not cause pain. He uses solutions of a strength of 1:5000 to 1:3000. At first he does not instill more than twenty or thirty drops, but gradually the quantity is increased to a fluid drachm, the instillation being performed with a syringe into the prostatic urethra. The instillation should be made when the bladder is empty, and for that reason catheterization may be necessary. The method is especially valuable in cystitis of tubercular origin, and is productive of good results also in gonorrhœal cystitis.

In chronic cystitis of an ordinary catarrhal type, as well as in cases of tubercular nature, the instillation of the following emulsion should be valuable. It is recommended by the author, Prof. MOSETIG-MOORHOF, (*Therap. Monatsh.*, 1889,) that half a drachm of it in a pint of water be injected into the bladder after the viscus has been emptied and washed out:

695. R.	Iodoform,	3 iij	
	Glycerin,	f. 3 jx	
	Distilled water,	f. 3 iss	
	Gum tragacanth,	gr. iv.	M.

Camphoric acid is also recommended as an agent in the treatment of cystitis, having a decided influence in preventing the decomposition of the urine, although none on the formation of pus. It is used in a weak solution by taking ten parts of a twenty per cent. alcoholic solution of the acid and diluting it with four hundred parts of water.

Professor GUYON in ordinary cases of acute cystitis practises the most rigid hygienic treatment. All alcoholic drinks are decidedly prohibited, and the patient is put upon an absolute milk diet. Free bathing in properly tempered water is permitted. Cupping and local blood abstraction generally are reserved for subacute cases. Where pain is a prominent symptom hypodermic injections of morphine are to be used. In all cases of acute cystitis the practice of washing out the bladder is contraindicated because of the pain it induces. When the pain does not yield to antiphlogistic or to sedative measures, instillations of nitrate of silver may be used with hope of success. Instillations may be used in all cases no matter how acute, and are particularly useful in those cases where slight final hemorrhages occur in micturition. The patient should urinate before

the instillation, but it is not necessary to wash the bladder or disturb it at all. The instilling syringe should be passed back through the membranous urethra and when it enters the prostatic urethra the instillation should begin slowly. Twenty or thirty drops of a 1:100 solution of nitrate of silver should be used at first, but after a few days one may use a solution of 1:40 or 1:20 strength. In chronic cystitis, as diluents he recommends the use of the waters of Vittel, Contrexéville and Capvern, and prescribes the following pill, like which four to six should be taken daily:

696. R.	Venetian turpentine,			
	Extract of quinquina,	āā	gr. iss	
	Calcined magnesia,		q. s.	M.

PROFESSOR BOUILLY, OF PARIS.

This gentleman (*Form. de la Faculté Méd. de Paris*) advises in acute cases the application of leeches to the hypogastrium, and to the perineum or anus. Prolonged hot baths or hot fomentations are useful, as well as hot rectal injections. Internally, opium or chloral solutions are of value to ease the pain and discomfort; and suppositories of belladonna are an excellent adjunct, having an especial influence over the vesical tenesmus. Warm, soothing, non-alcoholic drinks may be taken. As agents for influencing the character of the urine and rendering it non-irritating, this authority employs turpentine, lithium, essence of santal, and the waters of Vichy, Vittel, or Contrexéville. Where the cystitis is dependent upon the presence in the bladder of some foreign body, as sharp bits of a calculus, after attempt at crushing, operative means should be at once instituted for the removal of the offending substance. The tendency to retention of urine should be prevented by catheterization practised three or four times daily; but in using the catheter care should be taken not to entirely empty the bladder. If the urine is altered from fermentation in the bladder, injections of appropriate character should be used.

For this last purpose, to render the urine aseptic in cystitis and in gonorrhœa, the following internal medication is recommended in the *Gazette de Gynécologie*, 1889, (*Med. News*, 1890):

697. R.	Sodium borate,		1	
	Syrup of raspberry,		3	
	Infusion of lactucarium,			
	Infusion of linden flowers,	āā	8.	M.

Sig.—A tablespoonful every two hours.

Or,

698. R.	Benzoic acid,	1 or 2	
	Glycerine,	5	
	Simple elixir,	75.	M.
Sig.—A tablespoonful every two hours.			

In cases of gonorrhœal cystitis these same general outlines are suitable for the acute forms. In the chronic cases the best agency for preventing the pain of micturition, which is such a frequent symptom, is the instillation of nitrate of silver solution into the deep urethra, and into the bladder.

Wherever a subacute and chronic cystitis arises from the presence of an obstruction to the urine, the first duty is to overcome this latter. Revulsives may be applied to the hypogastrium, and when it becomes necessary to remove the urine from the bladder by means of the catheter, the surgeon must keep in mind that not all of the secretion should be withdrawn, and that the catheter should be retracted before the bladder is empty. The various mineral waters above mentioned and the balsams may be found useful for their influence upon the vesical walls, as well as their modifying power over the character of urine.

Should there be a suspicion of the existence of pyelonephritis, care must be exercised in employing injections and stimulating the walls of the bladder. Intravesical injections are indicated when the urine stagnates and decomposes in the bladder. They should be made very cautiously with a syringe made for the purpose, the fluid being injected in small amounts at a time, but without withdrawing the tube, and at a temperature corresponding to that of the body. When about two or three ounces have been injected, the fluid should be permitted to escape. For the purpose of preventing intravesical fermentation there may be used in this manner solutions of nitrate of silver (1:500), carbolic acid (1:100), boric acid (4:100), sulphate of copper (1 or 2:100), or tannin (1 or 2:100). Of these the boracic acid is particularly well suited to prevent fermentative changes in the urine.

In some persistent cases in women the cure of the cystitis is best accomplished by the creation of a vesico-vaginal fistula.

PROF. S. D. GROSS, M. D., D. C. L., OF PHILADELPHIA.

In the early stages of the complaint the remedies are local and general bleeding, cathartics and diaphoretics, with low diet. When there is no marked biliary derangement, castor oil is the best purga-

tive. When such is present, calomel, either alone or with jalap. After depletion and catharsis, the "antimonial and saline mixture" (F. 22) seldom fails to relieve the symptoms.

The action of these drugs may be favored by tepid drinks, warm baths and fomentations. Diuretics should be avoided. If the urine is scanty, a small quantity of nitrate of potassium or spirit of nitrous ether may be given in a demulcent fluid. Fifteen to twenty leeches may be applied to the perinæum and verge of the anus. Dry or wet cups to the sacro-lumbar region will relieve the pain in the back. Anodynes by the rectum are very valuable, as :

699. R.	Pulveris opii,	gr. iij	
	Butyri cocoæ,	q. s.	M.
Mix thoroughly for a suppository.			

Or a drachm of laudanum in f.℥ij of tepid water may be thrown up with a syringe having a long nozzle, after the lower bowel has been washed out.

Chronic cystitis, or *catarrh of the bladder*, demands an unirritant, farinaceous diet, without condiments, acids, or spirits in any form. Exposure to cold must be carefully avoided. The acrid remaining urine should be drawn off, and pain and sleeplessness may be allayed by the following suppository :

700. R.	Pulveris opii,	gr. ij	
	Pulveris camphoræ,	gr. v	
	Extracti belladonnæ,	gr. ss	
	Butyri cocoæ,	q. s.	M.
Make one suppository.			

A particularly serviceable recipe where there is a morbid irritability of the neck of the bladder is the following :

701. R.	Uvæ ursi foliorum,	℥ iss
	Humuli foliorum,	℥ ss.
Infuse in a quart of water, in a covered vessel, for two hours, and add :		
	Sodii bicarbonatis,	℥ ij
	Morphinæ sulphatis,	gr. ij.
Of this a wineglassful is to be taken five or six times a day.		

In ordinary cases no remedy equals the balsam of copaiba, as follows :

702. R.	Copaibæ,	f.℥ j	
	Morphinæ sulphatis,	gr. ij	
	Pulveris acaciæ,	℥ ij	
	Sacchari albi,	℥ ij	
	Olei gaultheriæ,	gtt. x	
	Aquæ,	f.℥ vj.	M.
A teaspoonful to a dessertspoonful three or four times a day.			

PROFESSOR EDLEFSEN.

This writer (in the *Deutsches Archiv für Klinische Medizin*, December, 1876,) teaches that in cystitis an instrument should never be introduced into the bladder unless absolutely necessary. Few cases, he believes, will resist the proper administration of *copaiba* and *oil of turpentine*. Of the latter he gives $\mathfrak{m}x$ at a dose. He also highly extols *chlorate of potash*.

703. R. Potassii chloratis, Aquæ,	$\frac{3}{4}$ ss Oj.	M.
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A tablespoonful every two or three hours.

Syrups and sweets should never be added. Prof. EDLEFSEN first employed chlorate of potash in cases where turpentine failed or was contra-indicated, and was surprised at the rapid cures effected. In one case which lasted two years, and in which turpentine did no good, after employing potass. chlor., for eight days, there was hardly any sediment in the urine, and it was quite acid. On the other hand, some cases which did not improve under potass. chlor. were cured by oil of turpentine. He thinks this remedy will supply a place long vacant, and hopes practitioners will fully test it. When chlorate of potash is used, as a rule the pus in the urine rapidly diminishes, the subjective symptoms disappear, or are mitigated, and the acid reaction of the urine returns, but not so rapidly as after the employment of oil of turpentine.

PROFESSOR D. HAYES AGNEW, M. D., OF PHILADELPHIA.

In the chronic stage of this disease, much advantage may be derived from the employment of rectal suppositories, as:

704. R. Extracti belladonnæ, Extracti hyoscyami, Butyri cocœ,	gr. ss gr. j q. s.	M.
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For one suppository. Use one several times a day.

For internal use, the following:

705. R. Sodii bicarbonatis, Infusi uvæ ursi,	gr. v f. $\frac{3}{4}$ ss.	M.
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This amount three or four times a day.

The bladder may be washed out daily with tepid water, by means of a double catheter, and then, if necessary, a weak solution of the permanganate of potassium injected.

In administering injections into the bladder the following rule given by Sir HENRY THOMPSON should be carefully observed: A flexible catheter being first introduced into the bladder, "have ready a five-ounce india-rubber bottle with a brass nozzle and stop-cock, the nozzle long and tapering, so as to fit a catheter of any size between Nos. 5 and 10, filled with warm water, say at 100° Fah.; attach the nozzle gently to the catheter and then throw in slowly a fourth of the contents; let that run out; it will be thick and dirty, no doubt; then inject another fourth, which will be less so; again another, which will return clearer than the preceding; and the fourth portion will probably come away nearly clear. Now these four separate washings of an ounce each will have been really more efficient than two washings of four ounces each, and you will have reduced the amount of instrumental irritation to a minimum. Never, under any circumstance, throw in more than two ounces at a time, and even this quantity, for efficient washing, is better avoided." Dr. BRAXTON HICKS advises that the point of the catheter, in giving an injection, should not pass far beyond the neck of the bladder, otherwise, if it touches the sides or back, it occasions great distress.

For spasm and pain a suppository of morphine, gr. $\frac{1}{2}$ -j, is often of the greatest service. Counter-irritants are not of much service. Perhaps the best is a hot linseed poultice, well sprinkled with strong flour of mustard, above the pubes. Hot fomentations and hip-baths alleviate pain materially.

Of the various infusions and decoctions said to exercise a beneficial influence in cystitis, Sir HENRY names the following in the order of their value for the cases one commonly meets with: Buchu, *Triticum repens*, *Alchemilla arvensis*, *Pareira brava*, *Uva ursi*. Of the first, fourth and fifth, give Oss daily; of the second and third, Oj; that is, of their infusions or decoctions. The *Triticum repens* was introduced by Sir HENRY himself, and should be prepared as follows:

706.	R.	<i>Triticum repens</i> (the underground stem),	℥ ij
		Water,	Oj.

Boil for a quarter of an hour. Take in four doses in the twenty-four hours.

The resins also have also a certain amount of value.

707.	R.	<i>Copaibæ</i> ,	℥ v	
		<i>Mucilag. acaciæ</i> ,	3j.	M.

This amount thrice daily.

In regard to alkalies, the following old combination, said to be of

714. R. Opii pulveris, ℞ij
 Camphoræ pulveris, gr. xv
 Saponis, ℞vss. M.

Divide into sixty pills. One thrice daily, in acute cystitis.

DR. MALLEZ, PARIS.

715. R. Sodii hyposulphitis, ℞iv
 Aquæ destillatæ, Oj. M.

This solution to be employed in five injections into the bladder, in chronic vesical catarrh.

716. R. Potassii permanganatis, ℞ij
 Aquæ destillatæ, f. ℥x. M.

Inject one-third of this solution into the bladder, in chronic catarrh, when the urine is purulent.

717. R. Tincturæ iodinii, ℞ij
 Potassii iodidi, gr. xv
 Aquæ destillatæ, f. ℥x. M.

Inject one-third into the bladder, on three consecutive days, in chronic cystitis, with slight mucous catarrh. If this injection causes pain, use the following:

718. R. Tincturæ iodinii, ℥xv
 Potassii iodidi, āā
 Extracti belladonnæ, gr. xv
 Aquæ destillatæ, f. ℥x. M.

One-third to be injected as above.

719. R. Potassii iodidi, ℞iv
 Extracti hyoscyami, āā
 Extracti conii, gr. v
 Butyri cocoæ, ℞iv. M.

For one suppository. To be introduced into the rectum in engorgements and hypertrophy of the prostate.

NOTES ON REMEDIES.

Alkalies, especially the citrates and bicarbonates, must be freely employed when the urine is acid and the organs irritated and inflamed. (F. 705, 708.)

Ammonii Benzoas is recommended by Dr. GARROD, where a tendency to phosphatic deposit exists.

Argenti Nitras is highly recommended by French surgeons in the treatment of painful cystitis, used as a local remedy (p. 491, 492).

Benzoicum Acidum is advised by Sir HENRY THOMPSON in chronic cystitis. It should be administered in the form of a pill (gr. iij-iv, with glycerine), and not less than gr. xxiv taken daily.

Boracic Acid is highly esteemed as a local remedy in washing out the bladder. It is also given internally (gr. x-xv) to overcome the alkalinity of urine.

Buchu, in the form of infusion, given to the extent of half a pint daily, has proved of service in the hands of Sir HENRY THOMPSON.

Camphoric Acid is also used in weak solution as a local remedy to prevent the decomposing fermentation of urine in the bladder.

Cantharides may be cautiously employed in very chronic cases. The dose is gtt. x of the tincture thrice daily.

Carbolicum Acidum, in one per cent. solution, makes a most efficient antiseptic injection. The bladder is singularly tolerant of this agent. (*British Medical Journal*, May 15th, 1880.)

Colchicum is of value in the cystitis of rheumatic and gouty subjects. It may be either given alone or in connection with *pareira brava* or *buchu*. It is indicated, according to Sir BENJAMIN BRODIE, when the urine is alkaline.

Copaiba, alone or combined with *cubels*, is useful in relieving intense irritation, particularly in persons of a strumous diathesis or debilitated constitution. Sir HENRY THOMPSON states that the dose in these cases should not exceed m_v , in mucilage, three or four times a day. (F. 702, 707.)

Cubeba, given cautiously, in small doses, (gr. x-xv, thrice daily,) is recommended by Sir BENJAMIN BRODIE as often useful in relieving the symptoms, both in primary inflammation and in that resulting from the presence of a calculus in the bladder.

Eucalyptus. Dr. BARIHOLLOW states that this is the most effective remedy he has ever used in chronic catarrh of the bladder. It is a powerful diuretic, and exerts a strong local action on the vesical mucous membrane. It may be given in tincture (f. 2j) or extract (gr. j-3j).

Ferri Chloridi Tinctura has been employed, when persevered in, with advantage, by Sir BENJAMIN BRODIE, in doses of m_viiij -xv twice a day, in water or an infusion of *buchu*.

Hydrargyri Bichloridum. This is warmly recommended as an instillation substance in cystitis by GUYON (p. 491).

Iodoform is highly regarded as a local remedy in case of purulent or tubercular cystitis.

Lacticum Acidum is very highly spoken of by Dr. THEO. DEECKE. (*Buffalo Medical and Surgical Journal*, February, 1879.) He gives it in doses, gr. xv-xxx, by the mouth, and locally as a one per cent. injection. A few injections usually suffice. He finds it a potent antiseptic.

Opium is a most useful remedy. Its action is aided by the hot hip-bath, fomentations and linseed-meal poultices, sprinkled with mustard, over the hypogastric region. It may be employed in the form of a *suppository*. Mr. LISTON's favorite combination was the following:

720. R. Pulveris opii,
Extracti hyoscyami,

gr. ij-iv
gr. x-xv. M.

This should be preferably exhibited at the hour of sleep, and usually secures a state of enviable comfort for twelve or sixteen hours. Sir HENRY THOMPSON employs a suppository of morphine (gr. ss-j).

Parcira Brava is recommended by Sir BENJAMIN BRODIE as useful in lessening the secretion of ropy mucus, and diminishing the inflammatory action. He gives the following formula :

721. R. *Parcira bravæ radices*, $\frac{3}{4}$ ss
Aquæ, q. s. ad Oij. M.
 Simmer over the fire until reduced to Oj. Dose— $\frac{3}{4}$ viij-xij daily.

Tincture of hyoscyamus may be added, and where there is a deposit of the phosphates, hydrochloric and nitric acid.

Quinine Sulphatis. A solution of sulphate of quinine, gr. j to aquæ f. $\frac{3}{4}$ j, constitutes one of the most useful injections for cleansing the bladder of viscid mucus. Mr. ERICHSEN says he has found none superior to it in those forms of subacute cystitis with muco-purulent secretions that occur from any source of vesical irritation, and that are apt to supervene during lithotripsy. Mr. T. W. NUNN, of London, says in the *Lancet* that the most striking result is obtained by injecting the solution of quinine into the bladder in those cases where the urine is loaded with pus, and is *intensely offensive*; the bladder being irritable, the desire to urinate recurring every hour, or more often, for example, where the bladder only imperfectly empties itself, or when the continual use of the catheter is called for in enlarged prostate, or in atony of the organ. The following is his method of using the quinine as a bladder injection: Dissolve twenty grains of disulphate of quinine in twenty-five ounces of water by the aid of a few drops of dilute sulphuric acid or a teaspoonful of *common brown* vinegar. Of this solution inject into the bladder two or three ounces, and let it remain.

Saccharin has been proposed by Dr. A. H. SMITH, of New York, as a means of rendering the urine aseptic. It is given by the mouth in doses of gr. x-xv.

Satol has been recommended as a remedy to be used in fluids for washing out the bladder. So, too, has *salicylic acid*, in weak solutions, for the purpose of dissolving the tenacious mucus from the membrane lining the bladder, so as to permit of the action of other remedies. Where there is ulceration or much sacculation, however, the salicylic acid should not be used.

Santalî Oleum, in capsules or emulsion, every few hours, is stated by Dr. WILLIAM VARIAN, of Pennsylvania, to be the most efficient agent in ordinary cystitis he has ever tried. (*Medical and Surgical Reporter*, March 27th, 1880.)

Terebinthine Oleum, in the form of hot epithems over the hypogastric re-

gion, is highly serviceable. It is also approved of as an internal remedy, having especial action on the diseased bladder walls. (F. 696.)

Triticum Repens, in decoction, is highly spoken of by Sir HENRY THOMPSON and Dr. GRAILY HEWITT. (F. 706.)

Uva Ursi Folia, in decoction, Oss daily. (F. 701.)

DYSURIA, RETENTION OF THE URINE, STRANGURY, IRRITABLE BLADDER.

(See also Vol. I., p. 398.)

PROF. F. GUYON, OF PARIS.

This noted authority upon genito-urinary surgery (*Form. de la Faculté de Méd. de Paris*) counsels that in cases of incomplete retention of urine, strictures of the urethra be sought for and dealt with according to the special indications of the case, either by internal urethrotomy or by dilatation. In choosing the latter, at the same time a carefully regulated antiphlogistic course of treatment should be instituted, and the free action of the bowels watched. In complete retention there is more than the mere stricture to be contended with; every effort must be made to overcome the attending congestion. As medical measures in these cases of retention from recent urethral origin are opium, general baths or local application of hot fomentations, simple or sedative local applications, and measures for obtaining free movements of the bowels; and, in vigorous individuals, local blood-letting, by leeches, may be practised. As to surgical treatment, both in these and in cases caused by enlarged prostate, this must depend upon the passage of a catheter or sound, or upon the performance of an incision or puncture into the urinary tract posterior to the seat of obstruction.

In case of retention of traumatic origin, in the slighter cases where micturition is possible and is not painful, recovery occurs without surgical interference as a rule. Absolute rest in bed, diluent drinks, and the application of hot, moist cloths to the bladder and seat of injury, are generally sufficient. In many cases micturition is, however, not without pain, and blood may pass for some time along with the urine. Where the injury is in the urethra, as from a rupture of the urethra from the results of attempts at catheterization, the catheter, if possible, should be passed and retained in position for some

time. Where it is impossible to accomplish this purpose, there remain only, besides the passage of a catheter, the possibilities of relief from puncture of the bladder from above the pubes or through the perineum or rectum, or external urethrotomy back of the seat of injury or stricture.

In cases of urinary retention from paralysis of the bladder walls, a most common condition in persons suffering from some lesion of the cord or after apoplexies, there is little to be done beyond the regular and careful use of the catheter. The greatest care must be exercised, lest through the means of an unclean catheter, micro-organisms be introduced into the bladder and a fermentative process be thus induced which is certain to end in pronounced inflammatory changes. Where the paralysis is but a partial one, caused by local influences, as from the effects of operation on the parts or in the immediate vicinity of the bladder, the greatest benefit may be obtained from the systematic use of electricity and strychnine. The uninterrupted current should be used, with one pole introduced into the neck of the bladder, and the other should be applied over the symphysis pubis, for five or six minutes, using a mild current, every other day or oftener. Instead of strychnine, the other preparations of nux vomica may be employed, preferably the fluid extract in doses of gtt. xxx upward to the amount required to induce the first physiological symptoms.

PROF. GUNNING S. BEDFORD, OF NEW YORK.

722. R. Extracti hyoscyami,
Pulveris camphoræ,
Pulveris ipecac. et opii, āā gr. xij. M.
Make twelve powders. One every ten or twenty minutes until relief is obtained.

Prof. BEDFORD says this is the best remedy for strangury he has ever found.

In the general treatment for strangury, the result of the absorption of cantharidine or turpentine, prompt relief is generally afforded by a full rectal injection of starch and laudanum, together with the administration of tinctura camphoræ, gtt. xv-xx, repeated every half hour; or a pill of camphor, gr. iij, opium gr. $\frac{1}{4}$, every half hour. A hot sitz-bath, or hot cloths to the perineum, genitals and hypogastrium, are valuable aids.

BENEDIKT (*Wien. Med. Presse*, 1891; *Med. News*, 1891) reports several instances of strangury in which, after other measures had failed, the application of static electricity, by means of the douche

and spark, to the vertebral column and to the region of the bladder above the symphysis pubis, was followed by relief.

DR. A. W. ROGERS, OF NEW JERSEY.

723. R. Spiritūs ætheris nitrici dulcis,
Tinct. opii camphorate, aa f. $\frac{3}{4}$ j. M.
Take half a teaspoonful every hour; said by this writer (*Medical and Surgical Reporter*, January, 1873) to relieve most cases of dysuria and mild cystitis.

DR. THOMAS HAWKES TANNER.

In vesical irritability the urine should always be examined; and if it is found to vary from the normal condition, the treatment must be directed to remedy this.

In simple irritability of the bladder, not of long duration, attention to regimen generally, the avoidance of all stimulating drinks, and tepid salt-water baths, will often effect a cure. The dilute nitro-muriatic acid in decoction of pareira brava is very useful when the urine is alkaline or only slightly acid.

724. R. Acidi nitro-hydrochlorici diluti, f. $\frac{3}{4}$ iss
Tincturæ belladonnæ,
Extracti pareiræ liquidi, aa f. $\frac{3}{4}$ j
Decoctum pareiræ, ad f. $\frac{3}{4}$ viij. M.
One-sixth part twice or three times a day.

When the urine is found to be abnormally acid, the following mixture will often do great good:

725. R. Liquoris potassæ, m_x-xv
Tincturæ hyoscyami, m_{xl}
Infusi buchû, f. $\frac{3}{4}$ iss. M.
This amount three times a day.

Opiate suppositories at bedtime, or five or ten grains of the extract of henbane in a pill, lessen the irritability in all cases, and allow of a good night's rest. In general debility, or when the irritability comes on in young women at the catamenial periods, ferruginous tonics should be ordered. The tincture of cantharides, with or without the tincture of the sesquichloride of iron, has relieved all the symptoms of a few obstinate cases after other means have failed.

The following vaginal suppositories often prove very useful in women:

726. R. Zinci oxidi, Div
Extracti belladonnæ, Div
Olei theobromæ, $\frac{3}{4}$ j
Olei olivæ, f. $\frac{3}{4}$ ij. M.
Make eight vaginal suppositories.

In the *Gazette de Gynécologie* appears the following prescription for the relief of irritability of the bladder:

727. R.	Acidi benzoici,	gr. xv	
	Sodii boratis,	3 iss	
	Aquæ,	f. 3 v.	M.

Sig.: A tablespoonful thrice daily.

The remedy causes a diminution of the frequent desire to micturate.

Dr. E. L. TUNSTALL recommends the following mixture in cases of irritable bladder (*Med. Summary*, 1890.)

728. R.	Potassii citratis,	3 iv	
	Extracti tritici repentis fluidi,		
	Tincturæ hyoscyami,	āā f. 3 j	
	Extracti buchu fluidi,	f. 3 ss	
	Aquæ,	q. s. ad f. 3 iij.	M.

Sig.: A teaspoonful in a wineglass of water three or four times a day.

DR. W. SCOTT HILL, OF MAINE.

729. R.	Potassii bromidi,	gr. iv	
	Potassii carbonatis,	gr. iij	
	Fld. extracti gelsemii,	m x	
	Aquæ,	f. 3 ij.	M.

For one dose every four or six hours.

The above has been found by Dr. HILL to exercise very beneficial effects in irritable bladder, characterized by frequent calls to pass the urine, which is voided in but small quantities, often but a few drops, attended by excessive pain during micturition. Some of his cases were of gonorrhœal, others of traumatic origin. The ingredient of importance is the gelsemium; while the addition of the carbonate corrects acidity, and the bromide acts as a nervous sedative. Tilden's fluid extract is the preparation employed. (*American Journal of Medical Science*, February, 1872.)

NOTES ON REMEDIES.

Ammonii Bromidum, gr. xx-xxx, in water, half an hour after each meal, is useful in cases of morbid sensibility of the bladder without obvious cause.

Ammonii Citras. In those forms of irritable bladder, in which the urine is of low specific gravity and deficient in urea, the following has been found of great value, although many of these cases are connected with serious organic disease of the kidneys and palliation is all that can be looked for. The formula is one by the late Dr. PROUT:

730. R. Ammonii sesquicarbonatis,
Acidi citrici,
Aquæ,

3j
gr. lxxv
f. 3vj. M.

One ounce of this to be taken three or four times daily.

The *citrate of potassium* has been used in the same manner and with the same purpose with excellent results. (F. 728.)

Belladonna. In almost all varieties of morbid nervous irritability of the bladder, after removal of the exciting cause, this drug is found most soothing and efficacious. Dr. GROSS prefers it in the form of the juice, in doses of about five drops, repeated three or four times in the twenty-four hours. In the neuralgic form of the disease, he combines it with quinine, strychnine and arsenic. Dr. TANNER administers the extract internally or with oxide of zinc as a suppository. (F. 724, 726.) A solution of atropine is a convenient mode of administering it, (atropinæ, gr. j, aquæ, f. 3j; three to five drops for a dose.) The physiological effects of the drug must be obtained to insure its medicinal influence.

Buchu is a frequent ingredient in non-irritative diuretic mixtures; it is claimed for it to have a direct soothing influence upon the walls of the bladder, as well as its marked diuretic power.

Camphora is extremely useful in strangury. It may be given as *aqua camphoræ* in ounce doses, combined with $\frac{1}{4}$ of a grain of morphine, every quarter of an hour, until four or six doses be taken. When it is feared that strangury will result from the application of a cantharidal blister, this complication can be prevented by wetting the surface of the blister with tincture of camphor before applying it.

Cannabis Indica is used by some surgeons.

Cantharis is especially valuable in vesical irritability as it occurs in women, without the existence of acute inflammation, and not produced by uterine displacements; also in the vesical tenesmus which sometimes accompanies chronic prostatic disease.

Carbonicum Acidum. As a local sedative, carbonic acid gas has been employed with considerable success in relieving pain and checking the constant desire to void the urine. (See under *Spermatorrhea* for the method of applying the gas.)

Chloral, in occasional small doses, is frequently efficacious in relieving the symptoms, especially when dependent on lesions of the brain or spinal cord.

Cocaine is said to be valuable in cases of irritable bladder and strangury, instilled into the deep urethra.

Colchicum often succeeds admirably when the patient is of the rheumatic or gouty dyscrasia. The following is a good combination:

731. R.	Vini colchici, Spiritus ætheris nitrosi, Morphinæ sulphatis, Aquæ,	āā	f. ʒj gr. ʒj f. ʒj.	M.
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This amount every night at bedtime. (GROSS.)

Copaiba. The internal use of the balsam of copaiba is particularly called for in irritability from inflammatory causes, after the acute symptoms have measurably subsided.

Digitalis. In irritability with suppression a digitalis poultice will often relieve the symptoms.

Electricity has been used both in cases of strangury (p. 503) and in retention from paralysis of the bladder (p. 503) with excellent results.

Gelsemium is frequently an efficient agent in allaying vesical irritability.

Hot moist applications over the bladder and perineum have long enjoyed an excellent reputation in cases of strangury and irritable bladder. So, too, cold has been used with effect, but it is not to be advised in preference to heat.

Hyoscyamus is frequently included in diuretic compounds as a sedative, in cases of strangury and irritable bladder.

Opium, in the form of laudanum enemata, is very efficient in simple irritability; also as suppositories.

732. R.	Pulveris opii, Butyri cocœ,	gr. j-ij q. s.	M.
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For one rectal suppository.

Potassii Bromidum, and the other bromides, freely given internally, often relieve the pain and spasm.

Zinci Oxidum is added to vaginal suppositories for vesical irritability with advantage. (F. 726.)

ENURESIS, INCONTINENCE OF URINE.

(See also Vol. I., p. 395.)

Where the incontinence is due to traumatic cause, to vesical or urethral paralysis, to the influence of urethral stricture or of an enlarged prostate, the condition is most nearly a surgical subject.

Prof. GUYON favors the use of electrical applications in cases of enuresis in childhood, and regards this treatment as appropriate also in those cases where the incontinence is due to urethral palsy or palsy of the neck of the bladder following traumatism. He applies

one pole in the urethra to the neck of the bladder, the other over the pubic arch. The current should be weak, of induced electricity, not too rapidly intermittent, and of from two to five minutes duration.

In cases of incontinence aroused by irritation from a stricture, the appropriate treatment should be directed toward this last. Sedative and antiphlogistic measures are to be recommended, combined with the proper operative treatment directed to the stricture itself.

In cases of enlarged prostate the urine is dammed back until the entire bladder is distended to such a point that slight dribbling necessarily occurs. The proper method of dealing with it is to prevent the urinary stagnation by the employment of the catheter. Thus, too, in cases of vesical paralysis the urine is retained until, by mere mechanical pressure of the distended walls of the viscus, but by no active power in them, the urine is caused to continuously dribble away. Here the evident treatment must exist in the proper use of the catheter, combined with appropriate treatment to overcome the paralysis of the bladder.

The following remarks are more appropriate to the non-surgical forms of incontinence, but may be permitted to remain in the volume, as they are at least suggestive and may be of value in the forms above mentioned. (See also Vol. I., p. 395.)

DR. WILLIAM A. HAMMOND, OF N. Y.

This author states (in the *Ohio Medical and Surgical Journal*, October, 1876,) that he has found the following plan of treatment so efficacious that, though there are others which are at times followed by success, he has for several years past adopted it exclusively:

(1) Supposing the patient, as is generally the case, to be a child, the bladder should be emptied on going to bed, and then two or three times afterwards the patient should be taken up and again made to urinate.

(2) Sleeping on the back should be prevented. The supine position is one which, of all others, increases the amount of blood in the cord, and hence augments its irritability.

(3) The following prescription should be given for several months, three or four at least; if stopped sooner, the affection is liable to return:

733. R. Zinci bromidi, $\frac{3}{4}$ ss
 Ergotæ ext. fl., f. $\frac{3}{4}$ iv. M.
 Dose.—Ten drops three times a day, increased five drops every month.

Thus for the first month ten drops are taken three times a day; for the second month, fifteen drops three times a day; for the third, twenty drops, and so on. It is preferably administered after meals, being less apt then to excite nausea or vomiting. Should either of those symptoms prove troublesome, the ensuing two or three doses may be somewhat smaller.

Children of from four to twelve years of age can take the foregoing quantities without disturbance of the general health, and even for adults it is not often necessary to increase them, except in the way of augmenting the dose by five drops every two weeks instead of every month.

In cases, however, where the bromide of zinc is not well borne, the bromide of iron may be substituted. It should be given in the form of a syrup, in doses beginning with five grains three times a day, gradually increased to fifteen or twenty.

734. R. Ferri bromidi, $\frac{3}{4}$ j
 Syrupi simplicis, f. $\frac{3}{4}$ v. M.

A teaspoonful of the syrup, made according to the above formula, contains about ten grains of the bromide of iron. The dose, therefore, to start with, is half a teaspoonful three times a day, increased gradually, until at the end of three or four months the patient is taking a teaspoonful and a half or two teaspoonfuls of the medicine. With each dose of the bromide of iron the fluid extract of ergot should be given separately, and, like it, should be gradually increased from ten drops three times a day to a drachm as often. The two medicines cannot be kept mixed together for any length of time without the bromide of iron being decomposed and the ergot also injured.

Dr. N. BRINCHLEY recommends the following:

735. R. Tinct. ergotæ, m̄x
 Tinct. ferri perchloridi, āā m̄y
 Spts. chloroformi, q. s. ad f. $\frac{3}{4}$ j. M.
 Infusi quassia, q. s. ad f. $\frac{3}{4}$ j.

This amount thrice daily.

In cases of incontinence following the retention of paralysis of the bladder, or in incontinence of traumatic origin, the following prescription, attributed to WHITLA, may be of use:

736. R. Tincturæ nucis vomicæ, f. ʒvj
 Extracti damianæ fluidi, f. ʒ ijss
 Glycerini, q. s. ad f. ʒ iv. M.
 Teaspoonful three times a day, after meals, in water.

NOTES ON REMEDIES.

Belladonna, and its alkaloid, atropia, are the remedies most generally relied upon. Either must be given in sufficient quantities to produce the physiological effects of the drug.

Benzoicum Acidum has frequently been found of value :

737. R. Acidi benzoici, ʒ ij
 Aquæ cinnamomi, f. ʒ vj. M.
 A tablespoonful thrice daily.

Chloral, gr. v–xv, on retiring at night, is often a complete preventive.

Ergota undoubtedly is often an excellent adjuvant to belladonna.

Ferri Bromidum is used by Dr. HAMMOND. (F. 734.)

Ferri Chloridi Tinctura is largely employed by some practitioners.

Ferri Iodidum is an excellent preparation in some cases, especially in strumous children.

Gelsemium. Dr. EDWARD R. MAYER states that the cases of enuresis, both infantile and senile, have under his care been cured by gelsemium when belladonna had entirely failed. (*Hints on Specific Medication*, 1876.)

Strychnina. Hypodermic injections of strychnine have recently been used by KELP (*D. Arch. für Klin. Med.*) in the treatment of enuresis, with good results. He reports the case of a girl, sixteen years of age, in which the affection had continued from infancy. He commenced by injecting one-sixteenth of a grain, afterwards one-eight to one-sixth of a grain, into the sacral region. The improvement was distinctly perceptible, even after the first injection. A complete cure was obtained in less than four months. The injections were repeated as often as the trouble re-appeared. Other successful cases are reported.

 FLOATING KIDNEY.

The very decided surgical status of this affection demands its consideration, at least briefly, at this point; although the necessarily operative character of the treatment leaves little to remark in a work of the character of this, excepting in those cases where all operative interference is refused and mere palliative measures accepted. The

affection is most frequently met among females, and is regarded as the result often of the pressure upon the kidney of the gravid uterus pushing it out of position. Recent writers are disposed to look upon this cause as of little importance, and regard it rather as the outcome of a general relaxed condition, especially if emaciation and loss of the fatty capsule of the kidney occur in such cases; and many are ready to attribute much of the tendency to matter of dress, tight lacing, the habit of suspending the weight of the dress upon the constricted waist, and the wearing of high-heeled shoes. These last are supposed to operate through causing an increased lumbar curve forwards, bringing the kidneys forward and stretching their peritoneal covering.

The operative measures directed against the condition consist either in the removal of the kidney or in stitching it in position, the latter being far the preferable. Ordinarily, however, the kidney may be kept in place, and the discomfort and pain avoided, by the application of a proper pad. A pad of the general size of the kidney is applied over the anterior region of the organ after the patient has been lying down and the kidney has been reduced to its proper place. This should be fastened in place in general in the same manner as is the pad of an ordinary truss, and supported by an elastic bandage going about the abdomen. In fact, an ordinary truss spring with an upright and a pad attached by the ordinary ball and socket joint is a very excellent apparatus, reinforced by the elastic bandage at a higher point of application than that of the spring. To overcome the irritability of the organ and the pain which occurs when it is free—although sometimes a wandering kidney exists a long time without giving rise to any marked symptoms—codeia may be employed with benefit.

These general rules for treatment, necessarily reinforced by the hygienic precautions suggested by the above observations as to the cause of the condition, should suffice in all ordinary cases; those which cannot be rendered comfortable by such simple means are to be given the very excellent hope of cure from operations such as nephroraphy, stitching fast the kidney in its perinephron to its proper place. Perhaps the most important feature in this outline is the suggestion as to prevention, by urging the practitioner to educate his feminine clientele on the possible dangers of mistakes in dress.

DISEASES OF THE PROSTATE BODY.

Prostatitis.—In follicular prostatitis, or prostaticorrhæa, no remedy is so efficacious as repeated mild blistering of the perinæum. It is best applied by painting cantharidal collodion upon one side of the perinæum, confining the patient for forty-eight hours to bed, and painting the other side of the raphe as soon as the soreness of the first application begins to subside. In applying the collodion, great care must be taken not to involve the scrotum and anus. The former had best be bound up tightly and the blistered surface covered with cold cream and lint. The diet should be supporting, and tonics given if needed. The urine should be modified by alkaline diluents. As a tonic Dr. BUMSTEAD commends:

738. R.	Acidi phosphorici diluti, Strychninæ sulphatis, Aquæ,	f. 3j gr. $\frac{1}{2}$ f. 3 ss.	M.
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This amount two or three times daily.

PROF. S. D. GROSS, M. D.

If the patient is plethoric, apply leeches to the perinæum, and unload the bowels by saline purgatives (sulphate of magnesia or bitartrate of potassium). Condiments and alcoholic drinks must be renounced, also horseback and bicycle exercise and venery. The patients must seek the horizontal position, wear flannel next to the skin, and avoid exposure to cold.

DR. WASHINGTON L. ATLEE, PHILADELPHIA.

739. R.	Fluidi extracti ergotæ,	gtt. xxx.
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This amount is to be given at first every four hours, its action being supplemented by the use of the catheter twice daily, until the patient regains entire control of the bladder. As this is restored, the frequency of the dose is gradually reduced to a single administration, at bedtime.

This treatment has been very successful in the hands of this late eminent surgeon. (See *Med. and Surg. Reporter*, May, 1878.)

Chronic Prostatitis with Hypertrophy.—This extremely common and often extremely distressing condition of the prostate has given rise to the greatest suffering, and has been indirectly the cause of death in a large number of individuals. All hypertrophy of the prostate is not necessarily of inflammatory origin, but it is probable that given a case of even the slightest inflammation with a tendency to prolong itself, eventually, if the person arrive beyond the fifth or

sixth decade of life, very few escape hypertrophy of the body in question. The difficulty of dealing with it operatively on account of its position, and the age and condition of the patients, have combined to render it one of the most unsatisfactory subjects for active interference; and attempts at prostatic removal or amputation have always been regarded with question.

Recently MOROTLI (*Brit. Med. Jour.*, 1891) has detailed the electro-cauterant method of BOTTINI, an Italian surgeon, in the treatment of enlarged prostate. The apparatus used is somewhat like a small lithotrite in appearance, and is so arranged as to carry a small cautery knife and its wires of connection with the galvanic battery. This knife is movable, and can be withdrawn into the instrument or exposed by means of a screw in the handle. Passages for conducting cold water are provided so as to prevent the instrument becoming heated and burning the urethral mucous membrane. The instrument is passed into the bladder, and its beak depressed so as to come into contact and hold the enlarged prostatic body, the wires are attached to the battery and the current turned on, and the cautery knife thrust forward upon the prostate. A sound of burning passes out through the instrument, and it should be pressed back and forth until the lobe is burned through. The electric contact is then broken; the instrument being, however, kept *in situ* until a minute or two have passed, that it may become cool before withdrawal. After this burn is healed and the scar contracts, it usually serves to clear the orifice of the urethra of its obstruction. BOTTINI has operated in fifty-seven cases, and has had three deaths resulting. In thirty-two the cure was perfect; in eleven there was improvement; in twelve there was no benefit.

DR. F. MAGENDIE, PARIS.

As *enlargement of the prostate* is a so frequent and annoying affection, which does not admit of cure by the knife, our attention is the more drawn to therapeutic measures. Dr. MAGENDIE believes that *muriate of ammonium* has a decided effect in reducing the gland. He gives:

740. R. Ammonii chloridi,
Extracti conii,

℞j
gr. ij. M.

This amount, in any appropriate vehicle, thrice daily.

MR. R. A. STAFFORD, F. R. C. S., LONDON.

This surgeon believes that he has succeeded in diminishing simple prostatic hypertrophy by the use of:

- | | | | |
|---------|---|--------------------------|----|
| 741. R. | Potassii iodidi,
Extracti hyoscyami, | gr. ij-iv
gr. v-viii. | M. |
|---------|---|--------------------------|----|
- Make a suppository. One every night.

When the urine is acid, the liquor potassæ or other alkali should be administered to restore its alkalinity.

Later writers speak highly of suppositories of *iodoform*. Prof. BARTHOLOW remarks, "the iodoform diffuses into the neighboring organs and acts directly upon them."

PROF. HEINE, INNSPRUCK, GERMANY.

- | | | | |
|---------|---|----------------------------|----|
| 742. R. | Potassii iodidi,
Tincturæ iodinii,
Aquæ destillatæ, | 3 ij
f. 3 ij
f. 3 ij | M. |
|---------|---|----------------------------|----|

Of this solution, twelve to twenty drops are to be thrown into the substance of the gland, to a depth of two lines, the operation to be repeated every seven or fourteen days.

Great care is required to avoid parenchymatous suppuration. The median line of the prostate is to be avoided.

PROF. H. KÖBNER, OF BERLIN.

Prof. KÖBNER (*Therap. Monatsh.*, 1889; *Med. News*, 1890) has for some time used with good results the iodide and bromide of potassium, administered by the rectum, in the treatment of chronic prostatitis. He at first employed these salts in suppositories with cacao butter; but as these were apt to cause irritation and burning in the rectum because of the slow melting of the cacao butter, he has modified the use of the remedies by prescribing them as follows:

- | | | | |
|---------|--|--|----|
| 743. R. | Potassii iodidi,
Potassii bromidi,
Extracti belladonnæ,
Aquæ, | gr. iv
gr. iij-iv
gr. ½
f. 3 v. | M. |
|---------|--|--|----|

This amount to be added to from one and a half to three ounces of warm water and injected once, later twice, daily.

Later the amounts of the salts in the above prescription may be doubled and tripled.

OBERLÄNDER (*Deutsch. Med. Wochens.*, 1891) prescribes the following suppository in cases of chronic prostatitis:

744. R. Iodoformi, gr. viijss-xv
 Olei amygdal. dulc., q. s. ad solv.
 Olei theobromæ, q. s. M.
 Ft. suppositoria No. x.
 Sig.—One to be inserted into the rectum at night after evacuation.

The proportion of iodoform in this prescription should be of the less amount at first and gradually increased, if tolerated.

DRS. VAN BUREN AND KEYES, OF NEW YORK CITY.

Prostatic Hypertrophy.—The catheter is the natural specific for enlarged prostate. The patient should be instructed to use it himself, to draw off the residual urine. The bowels should be kept soluble with a gentle laxative, such as senna confection, and he should take a mild alkali, as potassii citratis, gr. x-xxx, three times a day. Merino should be worn in summer, flannel in winter, the feet kept warm, and moderate exercise (except horseback or bicycle riding) enjoined. "It is a rule with no exceptions that a patient with hypertrophied prostate is never safe unless he can pass a catheter for himself." He should also be taught how to wash out his bladder. Simple warm water may be used for this, or if the cystitis does not diminish and there is a free secretion of pus, nothing better can be suggested than this formula of Sir HENRY THOMPSON:

745. R. Plumbi acetatis, gr. $\frac{1}{4}$ — $\frac{1}{2}$
 Aquæ, f. $\frac{3}{4}$ j. M.

Or:

746. R. Acidi nitrici diluti, m j-ij
 Aquæ, f. $\frac{3}{4}$ j. M.

Or:

747. R. Potassii chloratis, gr. v-xv
 Aquæ, f. $\frac{3}{4}$ j. M.

For a continuous soothing injection, one which has power to check the pus formation, the combination of Sir HENRY THOMPSON, of borax and glycerine, is excellent.

When there is much pain, opium in suppository may be used, divided into small doses.

748. R. Extracti opii aquosi, gr. ss-ij
 Butyri coccoæ, q. s. M.
 Make six suppositories. One every four to six hours.

Atropine in injection is uncertain in its action, but occasionally gives relief by lengthening the period of urination and modifying pain.

749. R. Atropinae sulphatis, gr. $\frac{1}{3}$
 Aquæ, ℥. $\frac{5}{8}$ vi. M.

For a vesical injection. The amount may be cautiously increased.

Cystitis must also be combated by the usual remedies.

PROF. DITTEL, VIENNA.

This surgeon, in advanced prostatic disease, has recourse to a form of supra-pubic puncture. Having anæsthetized his patient, he forcibly distends the bladder with water, unless it should be capable of being filled by allowing the urine to accumulate. For this purpose he injects sometimes as much as forty ounces of water. He then punctures the bladder just above the pubes with an ordinary trocar, leaving the canula in the bladder during four, five, or six days. At the end of this lapse of time, the parts traversed by the canula having become consolidated, a tubular tract is formed, through which, on removal of the canula, a soft rubber catheter can readily be passed into the bladder. This is permanently secured in place by means of a perforated plate of hard rubber, through the central opening of which the catheter protrudes, being fastened to the margins of the orifice by means of a pin; the plate itself is kept in place by a belt, the extremities of which are fastened to the ends of the plate. Such an apparatus is, however, not indispensable, as means of retention can easily be improvised in various ways, the simplest consisting in the use of a long pin which traverses the catheter transversely at its point of emergence above the pubes, and across the ends of which strips of adhesive plaster are placed.

DR. JAMES A. JACKSON, MADISON, WIS.

Dr. JAMES JACKSON in a paper before the Central Wisconsin Medical Society (*Med. News*, 1891,) excellently reviewed the general care of the old man with enlarged prostate. He advises that whenever an old man complains of frequent or difficult micturition or of a necessity to get up at night to perform this act, a careful examination for the presence of an enlarged prostate should be made, and to exclude the many other causes of such symptoms before regarding the prostatic condition as the culpable one.

These cases, or many of them at least, must now begin their

"catheter life." Look well to the patient's hygiene. Impress the belief that lease of life and freedom from complications will depend upon the care exercised in regard to the daily habits of life. Exposure to cold or inclement weather must be absolutely forbidden; clothing should be always sufficient to guard the surface from sudden or prolonged cold. Overwork should be avoided, but a regular amount of moderate exercise encouraged. The bowels must be kept in order and regularity, and the lower bowel should never be allowed to become loaded. Excesses in eating, the over-use of alcoholics, highly seasoned foods, are to be proscribed. The general health is to be maintained, and remedies to give tone to the bladder-walls are indicated. The balsamic and stimulating diuretics and such remedies as disinfect and improve the urinary passages are often valuable. The bladder must be evacuated with a definite regularity, and at the very outset of any symptom of future danger, if it can be accomplished in the regular manner. Straining efforts should be checked, and postures favorable for urinating assumed, as squatting; and the residual urine caused to be expelled by gentle but firm pressure of the hand upon the perineum.

When the case becomes serious, with necessity of night micturition, atony of the bladder-walls, retention, chronic cystitis, decomposition of the residual urine, the patient should be at once taught to use an aseptic soft catheter, and how to sterilize it each time. All the attention given to the instruction of the patient to keeping his instrument and himself perfectly clean, will be amply repaid by the absence of the most serious complications.

In passing a catheter upon a patient, do it carefully and well. Do not do it in a cold room. Put him to bed, in a warm bed; give a dose of quinine or Dover's powder or bromide with a hot drink, and, if convenient, a warm bath. These measures serve to lessen congestion and diminish reflex excitability.

RENAL AND VESICAL CALCULI AND GRAVEL.

DR. GEORGE F. HARLEY, F. R. S., ENGLAND.

This author has given a series of directions for arresting the formation of uric acid calculi, and facilitating their discharge. Tea, coffee, wines and beers are to be prohibited, or at least used in

great moderation. He attaches great importance to the quantity and quality of the drinking-water. Hard water should be carefully avoided. Distilled water is preferable both for drinking and cooking purposes. A patient should take freely, say from two to three pints of filtered rain-water in the twenty-four hours. As regards the benefits of the natural mineral waters, he believed they are chiefly due to the *alkalies* they contain. Of these, the carbonates, citrates and acetates of sodium, potassium and lithium, are those in most general use. Ammonia is not suitable, as the salt it forms in the uric acid diathesis is less soluble than any of the others. More depends on the dose than the kind of alkali given. As a general rule, it is unnecessary to render the urine more than neutral, except in cases where we are attempting to dissolve a stone already formed.

PROF. DUJARDIN-BEAUMETZ, OF PARIS.

Prof. DUJARDIN-BEAUMETZ (*Form. de la Faculté de Méd. de Paris*) makes use of the following formulæ to combat the tendency to the formation of uric acid gravel or sand:

750. R.	Potassii citratis,	℥ iij iv	
	Infusi arenariæ rubræ,	f. ℥ iij	
	Syrupi,	f. ℥ j.	M.

This amount to be taken in twenty-four hours.

Or:

751. R.	Lithii hydrati,	℥ iv	
	Syrupi et aquæ,	āā f. ℥ vj.	M.

Every half ounce (tablespoonful) represents gr. xx of the lithium.

Or:

752. R.	Sodii bicarbonatis,	gr. xxx	
	Tincturæ vanillæ,	m̄ xvj	
	Syrupi,	f. ℥ ij	
	Aquæ,	f. ℥ iij.	M.

To be taken within twenty-four hours.

Or:

753. R.	Sodii bicarbonatis,	℥ ij	
	Pulveris acidi tartarici,	℥ i	
	Sacchari,	℥ iij.	M.

One to four teaspoonfuls in a glass of water.

Or:

754. R.	Sodii bicarbonatis,	gr. viij	
	Sacchari,	gr. xxiv.	M.

For one powder; four such daily.

In case of a tendency to the formation of oxalate of lime gravel, Dr. BEAUMETZ cuts out from the dietary milk, cheeses, etc.; gives no alkaline remedies, but depends on diuretics, as the decoction of *arenaria rubra*, made of the strength of one ounce to the pint of water.

SIR HENRY THOMPSON, F. R. C. S., ETC., LONDON.

This distinguished surgeon delivered some lectures in 1873 on the preventive treatment of calculous disease, and as nineteen in twenty stones are urates, his especial question was, "How to prevent uric acid calculus?" He condemns reliance on diuretics and strongly alkaline waters, such as Vichy. At the bottom of the tendency to uric acid production, there often lies inactivity of the liver. For this, nothing is so valuable as the *saline* mineral waters, as Püllna, Friederichshall, Marienbad, Carlsbad or Franzensbad (in order of their strength). These waters should be given, from three to ten ounces, with half the quantity of hot water, before breakfast. In regard to *diet*, the patient should eschew alcohol, saccharine and fatty articles. Butter, cream and pastry are included in the last mentioned. Fresh, green vegetables may be taken freely, but not sweet fruits, as grapes, pears and plums.

All medicinal agents, secret or professional, are solutions of lime, soda or potash, alone or combined. Of all these, the citrate and the bicarbonate of potassium are preferred by our author. The former may be taken in doses of gr. xl-l, every three or four hours, in aquæ f.ßiv. The following conditions are essential to success: certainty that the stone is uric acid and of small size; that the urine is acid, and never ammoniacal.

755. R. Potassii bicarbonatis, 3xij
 Acidi citrici, gr. viij-xxiv
 Aquam, ad f. 3xij. M.
- One or two tablespoonfuls in a glass of water, thrice daily. Each ounce contains 3j citrate of potassium.

DR. VENABLES, LONDON.

756. R. Sodii boratis, gr. vij
 Sodii bicarbonatis, gr. ix
 Syrupi aurantii corticis, f. 3 iss. M.

To be taken during the day in soda water, for the red deposit seen in the urine of persons predisposed to gravel. The borax and the bicarbonate of sodium may be replaced by from four to six grains of carbonate of lithium.

DR. DEBOUT D'ESTRÉES, OF FRANCE.

In reference to the prevention of gravel, this writer observes (*Practitioner*, June, 1877,) that he has learned from experience with regard to the effect of some vegetables, viz., asparagus, sorrel, tomatoes, green beans, in the production of uric acid in all those who are affected with gravel. The absorption of asparagus in a rather considerable number of cases, about 20 per cent., is followed by more or less violent pains in the loins, and sometimes shortly afterwards by nephritic colic. He never noticed that it was followed by a more considerable expulsion of uric acid. He is of the opinion that asparagus does not produce uric acid, but that as it determines temporary congestion in a kidney which already contains some red sand, it facilitates the agglomeration of it, and may produce the formation of gravel.

With reference to sorrel, green beans, and tomatoes, they less frequently produce pains in the loins, but their absorption is followed by the emission of uric acid; nevertheless, a small number of patients complain of pain in their loins after having eaten those vegetables; and with some, this is so evident that they spontaneously cease eating them.

In the treatment of the different forms of gravel, he strongly recommends the mineral water of Contrexéville. It expels the gravel without pain, and is both tonic and restorative.

S. W. BUTLER, M. D., PHILADELPHIA.

757. R. Fresh root of hydrangea arborescens, 2 pounds
Water, 6 quarts. M.

Boil down to two quarts; strain, and add one quart of honey, and boil down to one quart. A teaspoonful twice or three times a day.

Dr. BUTLER highly recommends this remedy in cases of sabulous and gravelly deposits in the bladder. Under its use large quantities of sand and gravel have been removed.

A fluid extract of the hydrangea arborescens is prepared by the leading pharmacutists, and may be readily obtained.

C. W. FRISBIE, M. D., NEW YORK.

758. R. Sodii bichloratis, 3 ij
Extracti uvæ ursi fluidi, f. 3 j
Spiritus ætheris nitrici, .
Tincturæ opii deodoratæ, āā f. 3 ss
Aquæ, f. 3 iij. M.

A teaspoonful from three to six times daily, in uric acid diathesis or brick-dust deposit.

The celebrated *Haarlem oil*, used in Holland as a remedy against stone, is :

759.	R.	Olei cadini,	f. ʒ iv	
		Olei terebinthinæ,	f. ʒ iij	
		Sulphuris loti,	ʒj.	M.

Make one hundred and twenty capsules. One three times a day.

Among the medicinal means of combating uric acid gravel and calculi, tending to prevent their formation or to dissolve them if already formed, are the various alkaline mineral waters, as of Vals, Vichy, Vittel, Friederichshall, Contrexéville and Fachingen of the European springs, and of Londonderry Lithia, Farmville Lithia, Buffalo Lithia, or Colorado Springs of this country. Numerous testimonies as to the value of these alkaline waters in the treatment of lithiasis are to be met in medical literature; and there are many practitioners who claim to have dissolved calculi of the kidneys or bladder and to have caused their expulsion as detritus by means of this or that of these natural alkaline waters. Fluid extract of hydrangea is the basis of a well-known proprietary preparation made by alkalinizing the fluid extract with a lithium salt, which is undoubtedly of considerable value as a solvent, depending largely upon the latter for its activity. In one form or other lithium has come to be regarded as the medicinal solvent for these renal calculi and concretions, which are almost always made up of uric acid, less frequently of oxalate of lime, and rarely of phosphates.

In case of calculi of the bladder, the most simple non-operative method of relief, providing the calculus is small enough to be passed *per urethram*, may be tried by the patient himself, although he should be prepared for disappointment in not succeeding, or for active interference if the stone happens to lodge at some point in the urethra. There have been several instances published within the last few years in the medical journals where a man had educated himself, from the frequency with which he was called upon to rid himself of small calculi, to recognize the presence in his bladder of a fresh stone, and to be able by motions to communicate these motions to the stone and make it change its position. While the bladder is full the patient stoops over and takes a knee-chest posture to free the stone and throw it upon the anterior wall of the bladder. Then raising himself steadily but rapidly to nearly the erect posture (still upon his knees), the stone is supposed to roll to the base of the bladder, anterior to the prostate, and near the urethral orifice.

Slight jolting movements may now serve to throw it over the urethral orifice, and the desire to micturate instantly felt suggests its presence at the desired place, and the stream of urine may be sufficient to cause it to engage in the urethral passage, and perhaps to traverse the entire canal. Of course, it must be acknowledged that the chances of success are very slight, but they are, perhaps, well to take nevertheless, since there are cases of actual success upon record.

The surgeon is not infrequently called upon to treat an acute renal colic due to the passage of a renal calculus to the bladder. The indications of the paroxysm are the relief of pain and the relaxation of the tissues of the ureter through which the stone is in passage. The former of these indications is best accomplished by the administration of hypodermic injections of morphine, and as adjuvants suppositories of belladonna and opium may be inserted into the rectum. The patient should be placed into a warm or even a hot bath, or sitz bath; nauseating doses of ipecac or other nauseates may be permitted. In the extreme suffering, both to ease the pain and to cause relaxation, chloroform should be administered to complete anæsthesia and relaxation. In this condition and before, if the patient can bear it, deep movements downward along the course of the ureter may aid the passage of the calculus somewhat, and should be performed. If symptoms of impaction occur with the development of a hydronephrosis, the condition should not be permitted to remain unattended long; a laparotomy is necessary, and direct efforts to make the stone pass into the bladder, or its excision from the ureter. After the passage of the calculus, ergot should be given to stop all hemorrhage; diluent drinks and a fluid dietary should be advised, to wash out the parts as well as possible and free them from blood and crystalline detritus. Following this, the most careful attention to the general treatment of the lithæmic state must be adhered to.

PROFESSOR JOHN W. S. GOULEY, M. D., OF NEW YORK.

This surgeon, who has given much attention to the removal of calculi by lithotripsy, remarks that there are many cases so treated where the cystitis continues for a long period; and the opponents of the operation are too ready to attribute it to lithotripsy, losing sight of the fact that this inflammatory condition had existed long before the operation, which has often greatly mitigated and rendered it much more controllable.

One of the reasons for the continuance of this cystitis is neglect

of after-treatment. The French often begin to treat the cystitis before operating, and continue the treatment after the operation until all traces of inflammation disappear. Stagnation of urine is of very common occurrence in calculous cystitis; patients seldom completely empty the bladder before or after some of the operations for stone, and as long as there is stagnation, even only to a small fraction of an ounce, cystitis will continue, and in a few months may become obstinate, and even give rise to a phosphatic stone. Of late the English have adopted the French practice of constantly withdrawing the residual urine, and of beginning vesical irrigation immediately after lithotripsy.

Many American surgeons now make it a rule to instruct patients to draw off the last drop of residual urine twice daily, and to irrigate the bladder, and enjoin them to continue this practice until the urine is clear and passed at normal intervals, and tell them besides that to neglect this is to render themselves liable to the recurrence of stone. In some cases, it is necessary to irrigate the bladder with nitrate of silver solution (weak), but in the majority tepid water or a borax solution will suffice.

One of the main points in after-treatment is to guard against the recurrence of stone. Whatever may have been the original cause should, if possible, be removed. If, for instance, the stone has been of diathetic origin, such hygienic rules and medical treatment should be prescribed as the case requires. The existing dyspepsia should be relieved, and the chylo-poietic viscera put as soon as possible into their normal condition. In addition to attention to diet, to the functions of the skin, to exercise, etc., Dr. GOULEY is in the habit of giving a few brisk cathartics, then to prescribe a laxative and alterative pill, after the following formula:

760. R.	Resinæ podophylli,		
	Ext. fl. ipecacuan.,		
	Ext. nucis vomic. alc'h.,	āā	gr. v
	Hydrastinæ,		gr. xxx
	Leptandrinæ,		gr. xx. M.

Make twenty pills. One pill every night.

After the patient has taken forty or more of these pills, he should take a small dose of Friederichshall bitter water, or the Hunyadi Janos, every morning half an hour before breakfast, or the following:

761. R.	Sodii sulphatis,	℥j	
	Ammonii chloridi,	℥ss.	M.

To be dissolved in a pint of water; dose, one tablespoonful in half a glass of water every morning, half an hour before breakfast. This may be continued for several months. A grain of sulphate of iron may be added to each dose.

NOTES ON REMEDIES.

Acids. The mineral acids render important service in the oxalic and the phosphatic varieties of calculus. The nitric or nitro-muriatic acids should be given for a length of time in small, repeated doses. Citric, benzoic, and dilute phosphoric acids have also been prescribed with advantage.

Alkalies. Dr. ROBERTS, of Manchester, has shown that uric or lithic acid calculi may probably be dissolved in the bladder, if the urine is maintained alkaline for some weeks. This treatment is especially useful in renal calculus (kidney or nephritic colic) which is generally composed of uric acid only. Large doses of citrate of potash will often cure patients complaining of much pain in the back, passing bloody urine containing a large quantity of uric acid crystals, and a little pus. One point regarding the medicine given to check the formation of a lithic stone is well worthy of being borne in mind, *i. e.*, that the profuse administration of alkalies when the urine is acid tends to cause a rapid deposit of phosphates upon the surface of the stone, and thus to increase its size. The reaction of the urine should be kept at the *neutral* point, and not *alkaline*. (DRUITT.)

Aqua. An important agent in the prevention of the formation of calculi, is water taken pure and in large quantities. Hard water should be avoided and filtered rain-water preferred. (HARLEY.) Alkaline mineral waters should be taken freely (p. 521).

Ammonii Benzoas is of great value when the urine is ammoniacal and loaded with phosphates. Phosphatic calculi may be dissolved by the long-continued use of this remedy.

Belladonna has been recommended to relieve the spasms during the passage of renal calculi. Given by the mouth or by inhalation, it relieves pain without interfering with that muscular contraction which probably assists in the onward propulsion of the stone. The same remark applies to *ether*.

Boracite, the borate of magnesium, was the secret remedy of Paracelsus for stone. Dr. KÖHLER (*Berlin. Klin. Wochenschrift*, Nov., 1879,) has found an allied substance, the *boro-citrate of magnesium*, in doses of ʒj in water, to promote the discharge of gravel.

Gelsemium has been employed in vesical calculus. Copious diluent drinks are given for twelve or fifteen hours, followed by gelsemium every two hours until general relaxation occurs. The patient is then placed in the knee-elbow position and directed to void his urine forcibly.

Hydrangea Arborescens is valuable to prevent sabulous deposits. (See page 520.)

Lacticum Acidum. When the presence of an excess of the phosphates, uric

acid and the urates, and of oxalates of lime in the urine, is due to imperfect digestion and assimilation, as is frequently the case, lactic acid has been found of service through improving the digestion.

Lithii Bromidum. This substance, according to M. ROUBAUD (*Bulletin Generale de Therapeutique*, 1876), possesses, in a high degree, those litholytic properties attributed to the salts of lithium, and in addition, like other bromides, affects reflex sensibility most energetically. It has not, however, the inconvenient action on the heart displayed by bromide of potassium. Consequently, its place in therapeutics is in the first rank among lithiasics and among sedatives, and its action is particularly valuable in the uric acid diathesis, which is accompanied by painful symptoms, and in neuroses, which are so often complicated by the presence of uric acid. The alkaline salts of lithium have also been largely employed in the uric acid diathesis.

Nitricum Acidum, in dilute solution, gtt. j to aquæ f. ʒj, has been employed with success by some eminent surgeons for the treatment of phosphatic calculi.

Opium, in full doses, given by the mouth, or in the form of enema or suppository, is a remedy of great value. But *morphina*, hypodermically, is usually more effectual than any of these modes of administering opium.

Stigmata Maidis. Dr. DUPONT, of Buenos Ayres, states that in uric and phosphatic gravel the best results are obtained from infusions of this substance. (*Rev. Med. Quirurg.*, 1879.) -

Potassii Acetas is employed in uric acid calculus.

Potassii Bicarbonas, employed as the last mentioned. (F. 755.)

Potassii Citras. A valuable alkaline remedy. (See Alkalies.)

Potassii Permanganas. This salt favors the conversion of uric acid into urea, and thus prevents the formation of uric acid calculi. Pain in the lumbar region, frequent micturition, acid urine, brickdust sediment, and intestinal indigestion, are associated symptoms relieved by the permanganate. (BARTHOLOW.)

Triticum Repens, in decoction (ʒij to aquæ Oj, boiled for fifteen minutes and strained), is said to have afforded great relief in renal calculus.

Baths. The hot bath or hip bath is a useful, soothing remedy.

Ice. Dr. W. PROUT states that in protracted suffering in the passage of renal calculi he has occasionally obtained relief from the application of pounded ice to the region of the kidney. It is chiefly applicable when the calculus is of oxalate of lime, or the phosphate, but is not to be employed in plethoric, gouty patients, suffering from lithic acid and calculi.

INJURIES TO THE KIDNEY AND BLADDER.

Rupture of the Kidney.—This accident occurs occasionally as the result of violent blows upon the back or side, as may be received by falls from high distances. Indirect force, as from endeavoring to maintain the upright position when falling, has been known to produce injuries to the structures about the kidneys, and some of the symptoms at least of rupture of that organ, as the hæmaturia. In the more serious cases of this accident, where the hemorrhage is large and is productive of symptoms of collapse, there is nothing to do but make an exploratory incision and tie the bleeding vessels if possible, check the bleeding by pressure or some other means, or, if necessary, remove the organ. In the slighter cases, however, there is a chance that if properly cared for entire recovery, healing of the renal wound, will result. The treatment to be carried out is one of absolute rest in bed. The patient should not be permitted to rise for an instant or for any reason. Ergot should be administered in appropriate doses. The bowels should be guarded and passages kept regular in time and quantity. The urine should be voided frequently, as the patient will probably desire to do; and if any strangury arise, the appropriate treatment should be instituted. If the blood be in large amounts and clot in the bladder, clogging the urethral orifice, an acid solution of pepsin will dissolve the clot if injected into the viscus, and thus permit its passage. The diet should be eminently nonirritative, consisting largely of milk, and fluids should enter largely into the rest of the dietary. The urine is thus increased in quantity and diminished in its solids and in its irritative properties, and serves well to wash out the tubules of the injured organ. The urine is to be watched carefully by the microscope for the presence of blood-corpuscles as the case progresses, their disappearance from the excretion being indicative of the repair of the injured renal structure. Cases of cure by these precautionary measures are narrated by Dr. GEORGE DOCK (*Univ. Med. Mag.*, 1891) and by Dr. GAGE (*Boston Med. and Surg. Journal*, 1889), at the end of some weeks or months. For the pain attendant upon the injury, morphine should be used sparingly unless it be known that but one kidney is affected; the influence of opium upon the urinary excretory function is well-known as an inhibitive one. Local applications of heat and moisture should rather be attempted. Where

the pain is intense, however, general sedation by opiates becomes a necessity.

HENRY MORRIS, F. R. C. S., LONDON.

Wounds of the Kidney.—HENNEN, writing in 1818, states: "The remedies consist of venesection, mild purgatives, such as manna, oil, etc., frequent emollient enemas, the warm bath generally, and local fomentations, so as to excite diaphoresis, and to moderate urinary secretion, with a diet of the mildest kind, but much restricted in fluids, the indulgence in which, even in small quantities, should be avoided. Stimulants under any form, particularly those which can at all influence the urinary organs, and blisters and diuretics, are decidedly hurtful. The dressing should be extremely light, so as to admit of the free percolation of the urine, the neighboring parts should be varnished with some unctuous substance to prevent excoriation, and the bedding should be protected by oil-skin. By these means a few cases that have come to my knowledge have terminated favorably." Commenting upon this course of treatment, Mr. MORRIS, in an article in the *International Encyclopædia of Surgery*, remarks that with the exception of the venesection and the emollient enemata, these directions cannot be improved upon. The bowels are, however, to be kept free by mild measures. Clots of blood should be removed from the bladder, and hemorrhage checked by the administration of large and quickly repeated doses of ergot.

Rupture of the Bladder.—This accident is produced with more difficulty than the rupture of the kidney, and is usually the result of direct violence, as in crushing wounds of the pelvis. It may be accomplished, of course, by penetrating wounds of the abdomen, or by rough manipulation of an urethral or uterine sound.

PROFESSOR BOUILLY, OF PARIS.

In ruptures of the bladder away from the parts covered by peritoneum, that is usually in the perineal region, hemorrhage is one of the first things to demand attention. It is to be controlled by the application of cold, or, if possible, by tampons. In women the latter is usually possible, the rupture generally taking place into the vagina. A rubber catheter should be passed into the bladder and the urine and blood drawn off frequently. Anuria, or almost anuria, is a frequent symptom in these cases, the catheter bringing away little but blood. Whatever is done should be performed in as cleanly

and aseptic a manner as possible, and all instruments should be sterilized. Opium should be given internally to ease the pain and diminish the feelings of discomfort.

If there be much hemorrhagic infiltration and urinary extravasation, actual operative measures directed to the exposure of the rupture and its suturing must be employed. So, too, if the rupture be intraperitoneal, a laparotomy is indicated, and immediate action should be taken to prevent the peritonitis which is threatened from the presence of urine and blood in the peritoneal cavity.

XIV. LESIONS OF THE REPRODUCTIVE SYSTEM IN THE MALE.

Balanitis—Hydrocele—Impotence—Masturbation (Self-Abuse, Onanism)—Orchitis (Epididymitis)—Spermatorrhœa (Seminal Emissions)—Varicocele.

(For affections of generative system in females, see part of volume devoted to Gynecology.)

BALANITIS.

DRS. VAN BUREN AND KEYES.

If the prepuce can be retracted, simple balanitis may be speedily relieved. Cleanliness is of the first importance, but soap should not be used. Warm water, to which a disinfectant may be added if needed, will remove all the discharges. After washing, the parts should be gently dried by touching them with a soft cloth, and dusted with a mixture of finely-powdered calomel and calcined magnesia, or with calomel alone. If the ulcerations are deep, iodoform is preferable. A piece of lint or old linen, cut so as to be just large enough to cover the surface of the glans, is now to be moistened in one of the following lotions:

762. R. Vini aromatici,	f. ʒij-ʒ ss	
Aquæ,	f. ʒj.	M.

Or,

763. R. Pulveris opii,	ʒj	
Aquæ bullientis,	f. ʒvj.	
Dissolve and add,		
Liquoris plumbi subacetatis,	f. ʒj.	
Filter and cool.		

Or,

764. R. Aluminis exusti,	gr. v-x	
Aquæ,	f. ʒj.	M.
For a lotion.		

The linen so moistened is laid around the glans, leaving the apex and meatus uncovered; and finally, the prepuce is pulled forward to its natural position. This dressing is to be repeated twice or four times daily, according to the amount of the discharge.

In some cases the prepuce cannot be retracted; in this event its *cul de sac* should be thoroughly washed out with tepid water by means of a syringe with a flat nozzle, every two or three hours; and each time after the cavity has been cleaned, a mild solution of carbolic acid, or enough of any of the lotions above mentioned to distend the prepuce, should be gently thrown in, retained a moment, and then allowed to escape. If they cause smarting, their strength should be reduced.

In case the prepuce is much inflamed, rest, position and evaporating lotions locally, should be used in addition to the above measures. If the inflammation runs so high that sloughing of the prepuce appears imminent, it is better to relieve the tension by slitting up the dorsum; but if chancroid be present, inoculation of the wound is inevitable, and the operation should be postponed to the last moment.

In chronic and inveterate balanitis, or where constant relapses follow insignificant causes, *circumcision* affords a certain cure. All the unhealthy thickened inner layer of the prepuce should be removed. When this is not feasible, relapses may be rendered less frequent by the observance of the strictest cleanliness and by the persistent daily use of one of the following lotions:

765.	R.	Acidi tannici,	3j	
		Glycerini,	f. ʒj.	M.

Or:

766.	R.	Alcoholis,	f. ʒj	
		Aquæ,	f. ʒ ij.	M.

For a lotion.

The same treatment applies to *herpes præputialis*.

AUGUSTE CULLERIER, OF PARIS.

When it is possible to uncover the glans, make three or four dressings a day with a piece of fine linen or lint (inserted between the glans and prepuce), wet with one of the following astringent solutions:

767.	R.	Argenti nitratis,	gr. iij-ivss	
		Aquæ destillatæ,	f. ʒ iv.	M.

- | | | | | |
|------|----|---|--|----|
| 768. | R. | Aluminis,
Aquæ rosæ, | ℥ij-iv
f. ℥ iv. | M. |
| 769. | R. | Acidi tannici,
Vini aromatici,
Aquæ rosæ, | gr. xv-xxx
f. ℥ vj
q. s. ad f. ℥ iv. | M. |
| 770. | R. | Tincturæ iodinii,
Aquæ destillatæ, | ℥ xv-xxx
f. ℥ vij. | M. |

SILAS DURKEE, M. D., BOSTON.

- | | | | | |
|------|----|------------------------------------|----------------------|----|
| 771. | R. | Liquoris sodæ chlorinatæ,
Aquæ, | f. ℥ ss
f. ℥ vij. | M. |
|------|----|------------------------------------|----------------------|----|

This solution is to be applied on pieces of lint between the prepuce and the glans, three or four times a day.

If the erosion be considerable, and the puriform exudation copious, an astringent lotion may be appropriate, thus :

- | | | | | |
|------|----|---|---|----|
| 772. | R. | Zinci sulphatis,
Acidi tannici,
Glycerini,
Aquæ, | gr. ij
gr. iv
f. ℥ ij
f. ℥ iv. | M. |
|------|----|---|---|----|
- Apply with lint.

Simple *lime-water* will frequently effect a cure.

Balano-posthitis requires most frequently only local treatment. When, however, the inflammation tends to become phlegmonous, and threatens to terminate in gangrene, it is well to subject the patient to a severe regimen, and to the use of antiphlogistics, diet, repose, general baths, demulcent drinks, saline purgatives, etc. In order to combat gangrene, order :

- | | | | | |
|------|----|--|--------------------------------|----|
| 773. | R. | Camphoræ,
Extracti opii,
Mosehi, | ℥ ss
gr. iij
gr. viijss. | M. |
|------|----|--|--------------------------------|----|
- For forty pills. From six to ten a day.

The penis should be wrapped up in compresses, moistened with the following strongly opiated solution :

- | | | | | |
|------|----|---|------------------------------|----|
| 774. | R. | Extracti opii,
Vini aromatici,
Aquæ rosæ, | ℥ ij
f. ℥ iij
f. ℥ vj. | M. |
|------|----|---|------------------------------|----|

After the inflammation has subsided, lotions and intra-preputial injections, with the solution given above, should be resorted to.

Dr. EDWARD R. MAYER states that in balanitis the best local application one can use is the decoction of *Hydrastis Canadensis*, or, preferably, a solution of the muriate of hydrastin in glycerine.

HYDROCELE.

PROFESSOR JAMES SYME, F. R. S. E.

This eminent surgeon condemns in the strongest language all other proceedings in hydrocele than that of injection, and all other injections than *iodine*. With this properly done, he was *invariably* successful.

In order to secure the undoubted efficacy of the treatment, it must be done with strict attention to the following circumstances: In the first place the patient should *stand* while the sac is tapped, in order to let the water be drained off completely. Then f.5ij of Edinburgh tincture of iodine (iodinii ʒijss. alcoholis Oij.) should be injected, unless the tumor is either very large or very small, when there may be a corresponding increase or diminution of the quantity employed. And lastly, a rough shake of the scrotum should diffuse the injected fluid over the whole surface of the cavity.

The pain which ensues is generally slight and transient, hardly requiring any confinement; and at the end of two or three days, the swelling having attained its height, begins to subside, so that it speedily disappears.

Professor PÉRIER, of Paris, advises that after the fluid has been drained off a solution of cocaine should be injected into the sac several minutes before the iodine is injected into it, in order that the pain of the operation may be averted. It is well in performing the operation to insert the hypodermic needle into the sac before withdrawing the fluid through the aspirating needle. It is thus more easily passed directly into the sac, and can be retained in place until the fluid is removed, when the cocaine may first be injected through it, and afterwards the iodine, carbolic acid, or whatever irritant is employed.

This operation is applicable to all the forms of hydrocele, whether it be the ordinary one of water in the tunica vaginalis, or a collection of fluid in the spermatic cord, or that peculiar condition named *Spermatocele*, which has been commonly regarded as not amenable to injection.

MR. FORNEAUX JORDAN, BIRMINGHAM.

This able surgeon remarks (in the *Lancet*, Jan., 1876,) that in boys and men there are occasionally encysted hydroceles of the testis, or the cord, which continue to increase in size, or in which treatment

is urgently requested. In such cases, except in early infancy, acupuncture or the use of a fine trocar often fails to cure. The walls of the cysts are usually thin, and collapse so much when their contents are withdrawn that the injection of a fluid is uncertain. The end of the canula may be outside the cyst, and the iodine solution be consequently injected into the connective tissue at its exterior.

In such cases the following is a reliable method of treatment: The cyst being well isolated, made tense, and brought near the surface, the surgeon passes through its centre a stout needle, armed with silk, and leaves the threads hanging. The fluid quickly oozes away, especially if a little traction be made on the threads. He then, at one opening, wets the threads with *iodine liniment* (liniment because the quantity required is so limited,) and draws the threads so as to leave moistened portions within the cyst. A little gentle friction will help to spread the iodine thoroughly over the lining membrane of the cavity. An hour later freshly-moistened portions may again be drawn through if the cyst be large, or if other methods of treatment have failed. On the other hand, in a very small cyst, a single thread, moistened and kept in one hour, will suffice.

In the *Union Med. de Canada*, Dr. LUBIN states, that observing the frequent lumbar pain consequent upon the use of the ordinary injections in this affection, he was led to use a formula similar to the following:

775. R. Tinct. iodinii comp.,
Chloroformi,

f. ℥ iij
f. ℥ iijss. M.

In a number of cases in which this mixture has been used, no pain whatever followed this injection.

Dr. FRANCIS LABAT has lately described the good results obtained in the cure of congenital hydrocele by injections of *alcohol* according to Monard's method. The following plan is pursued (*Thèse de Paris*, November 19th, 1877): With a subcutaneous injection-syringe, one gramme of the serous matter contained in the hydrocele is evacuated, and one gramme of alcohol injected with the same syringe. In the meantime, pressure is made on the inguinal canal, and prolonged some minutes after the alcoholic injection.

Prof. HUTER and other German writers have recently highly extolled *carbolic acid* in a one or two per cent. solution. According to this surgeon, there is no pain whatever, either during or after the injection; a patient took a walk immediately after, and would not stay

at home on the second day. On the fifth day there was no swelling or tenderness, and the hydrocele could be considered cured. This plan of treatment, therefore, surpasses all the previous ones in painless and radical cure.

Dr. WAGNER, of Königshütte, recommends, as preferable to the usual procedures, the following plan: By means of a Pravaz veterinary syringe, which will hold about five grammes, the liquid of the hydrocele is to be completely aspirated. When the syringe is filled, the needle having been removed, it is to be emptied and re-applied as often as necessary, until every drop of the liquid has been removed. As soon as this has been accomplished, from five centigrammes to a gramme of a one per cent. solution of carbolic acid is to be placed in the syringe (previously disinfected), and slowly injected into the sac of the hydrocele, manipulating this a little after the point of the needle has been withdrawn. One *seance* should suffice, as the mothers are unwilling to allow a repetition; and care should be taken to previously ascertain that the liquid of the hydrocele has ceased to have any communication with the abdomen.

THE HYDROCELE OF INFANTS.

Dr. SAINT GERMAIN, of Paris, believes that it is not advisable to subject an infant with hydrocele to even the simplest operation, until a trial has been made of a saturated solution of *muriate of ammonium*. Compresses dipped in such a solution should be applied. Sometimes an erythema, even slight vesication, may be caused, but the part may be covered with powder, and the cure is not retarded.

Prof. D. HAYES AGNEW is accustomed, in such cases, to order frictions with an unguent:

776. R. Ammonii muriatis,
Adipis,

gr. xx-xxx
℥j. M.

For an unguent. To be thoroughly rubbed over the part twice each day for three weeks.

Should this not succeed in producing absorption, he punctures the tumor and drains off the liquid, and carrying through the sac one or two silk strands, allows them to remain in position about thirty-six to forty-eight hours, that is, until they have produced considerable irritation, but not enough to endanger the peritoneum.

Electrolysis has been used, with decided success, in hydroceles. Drs. BEARD and ROCKWELL remark that the great end to be accomplished is not the withdrawing of the fluid, which can be done with

the ordinary trocar, but the stimulation of the membrane of the sac so that absorption shall take place, and that the fluid shall not again collect. Many of the failures that have occurred in the treatment of hydrocele, have been owing to a misapprehension of this fact.

The method is to introduce the needles into the tumor at opposite sides, and so deep that the points nearly approach each other. The needles are then attached to from three to six elements of a galvanic battery. The application should be made for five or ten minutes. One, two or three applications usually suffice to effect a cure.

Dr. ULTMANN, of Vienna, in an article in the *Wiener Medicinische Presse*, 1876, concludes, from a series of experiments on cysts of the tunica vaginalis and ovaries, that the electrical current has no power of causing absorption, and that the results obtained with it are due to other reasons. Hydroceles of the size of the fist may be often made to disappear after one application.

The process he adopts is as follows: The insertion of the needle causes a slight mortification along the line of puncture, which prevents healing *per primam*. By this channel the fluid of the cyst escapes drop by drop, infiltrating the scrotum, and being absorbed by the clothing. This purely mechanical process is favored by the development at the negative pole of the oxygen gas, which drives out the fluid; but it takes place only in cysts which contain serous or sero-albuminous fluid. If the cyst-fluid be thick, it will not flow out through the puncture. As a matter of course, moreover, the needle must pass through the cyst-wall; and, in case the cyst contains blood or decomposing pus, like many ovarian cysts, the procedure is dangerous, because the fluid, in oozing out, may cause acute peritonitis. This occurred in one case, and necessitated immediate tapping. ULTMANN asserts that the chemical composition of a fluid is absolutely unaltered by the electrical current.

His applications were conducted with a Leclanché battery of twenty-four cells, whose negative pole—a needle of gold or platinum—was thrust into the cyst; and whose positive pole—a sponge-holder—was placed on the skin. The sittings, of twenty to thirty minutes' duration, were had every second or third day.

IMPOTENCE.

DR. THOMAS HAWKES TANNER.

The act of copulation may be rendered impracticable in man by a variety of causes, some of which can be readily removed, some removed after more or less treatment, while others again are wholly incurable. In examining any case, therefore, it is necessary to discriminate carefully the etiological elements. They may be summed up as follows:

1. *Absence or want of development, malformation or mutilation of the penis or testes.*—These are, usually, hopeless cases, though sometimes malformation may be remedied by surgical procedures.

2. *Mental Influences.*—Violent emotion, excess of passion, over-excited and especially long-repressed desire, want of confidence, timidity, anxiety, hard study, grief, disgust, all may deprive the person temporarily of his powers. These causes can all be removed, and their treatment calls rather upon the tact and skill of the physician, than upon his knowledge of the *materia medica*.

3. *Acute Diseases.*—Not unfrequently after fevers and other severe diseases the sexual organs remain feeble long after the general health is restored. These are proper cases for the exhibition of those nerve tonics whose especial action is upon the generative organs. The prognosis in young and middle-aged men is generally favorable.

4. *Injuries to the Cerebellum.*—Falls, blows and other injuries on the back part of the head are sometimes followed by loss of generative power. Such cases are generally incurable, and are apt to be followed by atrophy of the testes and penis.

5. *Injuries and Diseases of the Spinal Cord.*—Certain injuries and diseases of the cord, such as hemiplegia, locomotor ataxia, progressive muscular atrophy, etc., remove the power to copulate, owing to deficient erections, although desire may remain and semen continue to be secreted.

6. *Anaphrodisiacs.*—The excessive use of tobacco impairs digestion and weakens the nervous and muscular systems; opium-eating acts in the same way; the frequent use of bromide of potassium, camphor, lupulin, and some other substances, diminishes both desire and power.

7. *Abuse of the function.*—This may be by excessive sexual indulgence, or onanism, thus removing the power of erection. Proper regimen and a tonic treatment will generally restore such cases.

8. *Obesity*.—The excessive accumulation of fat weakens the sexual power.

9. *Prolonged Continence*.—The non-use of the function diminishes its activity, and may result in producing inability. Such cases, when otherwise healthy, are usually readily amenable to treatment.

10. *Abscess or other acute disease of the prostate gland*.

11. *Diabetes*.—It is not rare to find impotence supervene in advanced diabetes. Of course the prognosis is most unfavorable. Impotence is often also one of the first signs of approaching diabetes; and whenever individuals are met with who, previously virile, become weak and impotent, without coinciding disease, especially of the spinal marrow, diabetes will usually be found to be the cause.

12. *Atrophy of the Testes following mumps or syphilis*.

In addition to these various causes, Sir JAMES PAGET remarks that all sexual desire and power may cease in apparently healthy men, without apparent cause, at unusually early stages; thus, he has known cases where it has completely disappeared as early as thirty-five or forty years, even in men who had never masturbated and rarely had sexual intercourse.

SIR JAMES PAGET.

The more common cases of impotence are those due to nervous disorder or to mental defect; and the impotence which is complained of or dreaded without any real reason, is more common still.

Some of these mental and nervous defects hinder or interrupt erection; some prevent emission; some are only occasional; a few are habitual or even constant. They may be cured, if at all, by means addressed to the nervous system; but they are all hard to cure—as hard as it is to cure stammering, whether in speech or in any other function.

If a man has sexual organs, including the prostate, not manifestly diseased or wasted, and has erections and occasional nocturnal emissions, and any sexual desire, the surgeon may be very confident he is not impotent from any other cause than a mental or nervous one. A full and free statement that the presumed impotence is merely a nervous phenomenon will often relieve anxiety, and with it the trouble itself.

A sensible man, who has only been ignorant on sexual subjects, who can understand evidence, and who is ready to believe those who are most likely to tell him what is true, will be cured when the truth

is told. At the opposite extreme, the worst class of sexual hypochondriacs are almost incapable of cure; they will believe nothing hopeful; and they will be dull to all common sense statements.

DR. SAMUEL W. GROSS, OF PHILADELPHIA.

This surgeon has pointed out that sexual debility and impotence may result from stricture and inflammation of the curved portion of the urethra, brought about by the injurious habit of masturbation (*Medical and Surgical Reporter*, May 5th, 1877). He remarks that reduced sexual power, from whatever cause it may arise, is one of the most distressing of maladies; and is, therefore, entitled to the deepest sympathy and consideration on the part of the honest practitioner, by whom, unfortunately, it is rarely discussed.

From the intimate connection which exists between the urethra, the prostate, the seminal vesicles, the ejaculatory and the deferential ducts, and the testes, it is not surprising that lesions of that passage should exert a powerful effect upon the functions of generation, whether that effect be due to the extension of morbid action through continuity of structure, or to reflex action. Hence it is that many persons affected with urethral disorders, suffer from more or less marked disturbance in their sexual powers, amounting, in some instances, to impotence, or inability to copulate, either from incapability of intromission or premature ejaculation, both stages being associated with imperfect or transient erections.

The particular form of impotence resulting from *stricture*, is associated with inflammation and hyperæsthesia of the posterior portion of the urethra.

In the majority of the cases that come under observation, the trouble is due to subacute or chronic inflammation and morbid sensibility of the membranous and prostatic portions of the urethra, but particularly the latter locality, and is always associated with deep-seated stricture, which is generally of large calibre. These lesions are traceable, in the larger proportion of instances, to masturbation. Thus, in fifteen of nineteen cases he records, the sexual difficulty arose from the effects of urethritis, produced by onanism; while in only four was it dependent upon the localization of gonorrhœal inflammation.

These data are not only of the utmost practical value, but they are interesting, as they show that masturbation affects the sexual powers by inducing a state of constant congestion and undue excitability of

the urethra, which terminates in inflammation and the formation of a coarctation in its curved or fixed portion. All authors upon self-pollution recognize the fact that the mucous membrane of the prostatic urethra is in an irritable or morbidly sensitive condition; but they overlook the co-existence of a stricture, and ascribe to this habit but little influence in its causation. This most important factor in the origin and maintenance of impotence has not been sufficiently appreciated; an oversight for which one can only account by the defective means of exploring the urethra, which have been, and are still, usually employed. Instead of resorting to the soft exploration bulbous bougie, which is the only instrument with which dilatable strictures, above the medium size, can be accurately determined, the majority of general practitioners still adhere to the use of the ordinary flexible bougie, or metallic catheter, which, in many instances, fails to detect a coarctation, which is the sole cause of many functional disturbances of the genito-urinary tract.

These cases of sexual debility may be divided into four classes:

First. Those in which the erections are imperfect or feeble, and ejaculation too precipitate, but in which sexual desire remains, and intercourse is possible, although incomplete.

Second. Those in which desire is not abolished, but the power of erection is lost, and coitus impossible.

Third. In these there is neither desire nor ability to copulate, but hypochondriasis is superadded; and this mental impotence is often beyond remedy, after the lesions upon which the sexual trouble depended have been removed. In the milder forms of the affection, indeed, the physician is most frequently consulted on account of the fear on the part of the patient, lest he may not be able to consummate the venereal act; but the mind is rarely so seriously affected that he is not open to conviction on this point.

Finally, there is a *fourth* class of cases, in which relative impotence apparently arises from diminished reflex excitability of the spinal cord. This condition, which is characterized by retarded emission, is probably very rare.

The treatment of these various forms must look toward the local urethral constriction and toward the general condition of the system.

When the subject is robust and plethoric, mild antiphlogistics are indicated; while in anæmic patients, tonics, of which a combination of quinine, tincture of the chloride of iron and tincture of nux vomica is one of the best, will be required. *Bromide of potassium*, in full

doses, can never be dispensed with, since it fulfills the triple object of correcting the acidity of the urine, overcoming the sensibility of the urethra, and blunting the venereal appetite. When the local lesions have been relieved, its use should be discontinued, and remedies given to strengthen the sexual functions. The bowels should be kept in a soluble state; the diet should be simple and unstimulating, condiments, alcoholic and fermented drinks being avoided; heating exercises and clothing should be discarded; chastity in thought and action should be encouraged; and, finally, when the prostatic hyperæsthesia has disappeared and the sexual vigor is returning, the patient should be advised to marry. When the infirmity has advanced to hypochondriasis, the case is almost hopeless.

Of topical measures none has afforded such good results as the introduction of the *conical steel bougie*, at first every forty-eight hours, and afterwards every day. After the first few insertions it should be immediately withdrawn, but as the sensibility of the urethra diminishes, it should be retained for four or five minutes, and its size be gradually increased. As adjuvants, the local application of mild solutions of *nitrate of silver*, *acetate of lead*, or *tannin*, are useful, as are also cold hip-baths, enemata, and douches to the perinæum. If the disease proves obstinate, as it is liable to do when the prostatic or ejaculatory ducts are involved in the morbid action, the application of the solid *nitrate of silver* may be demanded. Under similar circumstances, *flying blisters* to the perinæum are of service.

The foregoing measures will usually suffice to overcome the morbid sensibility of the prostatic urethra, and dilate the stricture. Dilatation of the stricture alone, however, often fails to restore virility, because the stricture tends to maintain the inflammatory condition of the urethra behind it. In some instances, temporary relief follows; but to effect a permanent cure an operation will be required.

Dr. GROSS gives the preference to retrograde internal incision, performed with an instrument which he devised, and which he has successfully employed in a number of cases. It is fashioned like the bulbous explorer, and defines a stricture with great accuracy. Having been carried behind the stricture, the blade is projected from the bulb, by sliding the button at the proximal extremity of the shaft, and the coarctation, as well as half an inch of the mucous membrane behind and anterior to it, divided on its withdrawal. The bulb is again carried through the severed parts, with a view of detecting any uncut bands, and a steel bougie, corresponding to the

normal size of the urethra, as previously determined by the urethrometer, at once passed, and afterwards used every forty-eight hours, until the wound has cicatrized.

DRS. VAN BUREN AND KEYES.

For the management of the nervous and mental forms of impotence, these authors observe that it is necessary to arouse the moral sentiment of carnal desire, as well as the power of the organs locally to respond.

The first of these is attained by favorable relations to the other sex, and appropriate surroundings, the opera, ballet, the theatre, etc.

The second may be obtained by general frictions of the whole body, by massage and the flesh-brush: cold bath, sea-bathing, generous diet, and the internal use of tonic medication; the mineral acids, strychnine, ergot, and especially phosphorus and cantharides, or the two combined, commencing at a fair dose, say phosphorus gr. $\frac{1}{2}$ to tinctura cantharidis gtt. x, three or four hours before the desired erection, and increasing the dose carefully.

Cantharides produces erection without desire; *phosphorus* is apt to increase desire directly.

Cold and heat by the douche, alternated, electricity, and the local application of mustard, are all sometimes serviceable in recalling the power of erection. Occasionally decided advantage is derived from the *equalizer*, a large cell in which the patient sits with his head out, and from which the air is exhausted.

DRS. GEORGE M. BEARD AND A. D. ROCKWELL.

In regard to the success which may be expected to result from the use of *electricity* in absent or diminished sexual power, these authors remark that not only in its incipient, but in its more advanced stages, impotence is not unfrequently the result of organic lesions of the nerve centres, and its treatment by electricity is then only of importance so far as it serves as an illustration of the stimulating or tonic influence of the remedy.

Not unfrequently there is observed in connection with defective power, a partial *anæsthesia* of one-half, usually the left half, of the penis. This may be detected by an electric examination, or by the use of the æsthesiometer. It is frequently associated with a coldness and blueness of the organ, indicating lowered circulation and nerve power. Occasionally, the anæsthesia is quite profound, and as a rule, the sexual weakness is in proportion to the anæsthesia.

In these cases, this numbness appears to be the cause of the impotence, partial or complete, which exists. By the application of the ordinary electric brush to the parts, in the same way that we treat any case of local anæsthesia, the numbness is often removed, and the integrity of the sexual functions is restored.

In those milder forms of impotence, where there is simply a premature ejaculation of semen (*emissio intempestiva*) with some diminution of the power of erection, as well as in the more advanced stages, where the desire is capricious and the power of erection pretty well destroyed, it is evident that there must be a degree of paralysis at the root of the disorder, dependent on structural changes in the nerve centres; or else this impaired power or tone in the muscles and erectile tissue may be of a purely local character. In the latter case, the indications are clearly the same as in any other form of local paralysis, and much relief may be obtained by faradization of the ischio-cavernosus and bulbo-cavernosus muscles. But when due to structural change, little can be expected.

When, on inquiry, it appears that the seminal secretion is markedly reduced, not only in quantity but in quality, we may consider that there are undoubted indications for the use of electricity. The galvanic current, especially, has the power of exciting to increased activity the secretory function of various glands, and not seldom accelerates physiological mucous discharges.

We cannot, however, depend upon local treatment alone. The excessive use of sedative narcotics, sedentary habits and general mal-nutrition from any cause, demand the general constitutional tonic influence of general faradization.

The vesiculæ seminales and the testicles may be affected, and in some patients very powerfully and sensibly, when one of the poles is applied to the lower part of the spine, and the other to some point on the thigh or against the perinæum. A very good way to affect the male reproductive organs, is to apply one pole firmly against the perinæum and the other upon the testicles.

Faradization of the genital organs should not, usually, be protracted longer than five or ten minutes; galvanization from two to eight minutes. The faradic current would appear to be preferable. Impotence, like seminal emissions, may sometimes be treated by connecting the steel sound introduced into the urethra with one of the poles of the faradic current, thus combining the toning effects of pressure with the toning effects of electricity on the relaxed parts.

PROF. A. A. O'NEIL, OF SAN FRANCISCO.

This surgeon has called attention to the frequency of impotency from *elongated prepuce*. (*Western Lancet*, August, 1873.) The variety he refers to, and which he believes most prevalent, affects, usually, young men from twenty to thirty years of age, married as well as single, and manifests itself by imperfect erections, and that frigidity which, by force of an immoderate ardor, seizes the individual even in the very lap of fruition; or at best, when coition is attempted, produces an almost instantaneous ejaculation of semen, thus violating some one of the indispensable conditions for the perfection of the procreative act; namely, erection, intromission and ejaculation.

For the relief of this condition he has adopted *circumcision*, with almost constant success; selecting, of course, such cases where other causes are not apparent. Even when the prepuce is perfectly retractile, the operation may be called for, as by exposing the glans, its surface is rendered less sensitive, and hence less liable to be prematurely excited.

A *narrowed urethral meatus* has also been pointed out as a cause of urethral irritation and hyperæsthesia, leading to premature ejaculation and practical impotency. Division by the knife or gradual dilatation by bougies, are the measures called for in such a condition.

PROF. RICHARD M'SHERRY, OF BALTIMORE.

777. R.	Fld. extract. ergotæ,	f. ʒ vij	
	Acidi phosphorici diluti,	f. ʒj.	M.
A teaspoonful three times a day, in sexual debility.			

According to the researches of Prof. LEVI, of Pisa, the therapeutical properties of ergot are due partly to the presence of phosphoric acid, and are increased by such a combination as the above.

PROF. WILLIAM A. HAMMOND.

778. R.	Zinci phosphidi,	gr. ʒi.	
	Extracti nucis vomicæ,	gr. ʒi-j.	M.
For one pill, thrice daily.			

Loss of memory and impotency from sexual or solitary excess, are very favorably influenced by the phosphide of zinc.

PROF. S. D. GROSS, M. D.

In the temporary impotence which often afflicts young men who

have been addicted to masturbation, the assurance of speedy recovery is often sufficient, combined with a tonic, such as:

779. R.	Tincturæ nucis vomicæ,			
	Tincturæ ferri chloridi,			
	Tincturæ cantharidis,	āā	f. 3 ss.	M.
Ten drops thrice daily.				

Dr. BEGBIE has shown that the oxalic diathesis diminishes the sexual power and occasionally extinguishes it. The phosphatic diathesis acts similarly, but in a less degree.

PROF. ARTHUR GAMGEE, M. D., F. R. S.

This writer is of opinion that sufficient attention is not given to counter-irritation of the spine in debility arising from sexual excess, masturbation, etc. (*Practitioner*, February, 1877.) For this purpose he prefers the *Linimentum Sinapis comp.*, B. Ph., containing the ethereal extract of mezereon and the essential oil of mustard.

When prepared with pure essential oil of mustard, the liniment should possess a pungent odor, and should produce an almost painfully acute sensation in the nostrils when it is smelt.

If properly prepared, a few drops of linimentum sinapis, sprinkled over a pad of cotton-wool ten or twelve inches long and four or five inches broad, will suffice to produce, in a few minutes, pretty intense redness of the skin of the back, accompanied by more or less of the painful burning sensation characteristic of mustard.

As a rule, however, where it is deemed necessary to keep up counter-irritation of the back for considerable periods of time, it is best to cause the patient to wear a strip of spongio-piline four or five inches broad and of the length desired. In the case of persons with tender skins, the irritation and pain caused by even a few drops of the liniment (which is diffused by sprinkling and rubbing one part of the spongio-piline against the other), is so considerable, that the application cannot at first be continued for many minutes. After a day or two the patient usually becomes able to bear the strip for several hours, and finds that the sensation of irritation is decidedly more pleasurable than painful. If, as frequently happens, the patient, having experienced benefit from previous applications, has sprinkled too large a quantity of the liniment upon the spongio-piline, the irritation produced may be so considerable as to compel an intermission of the treatment for a day or two. The irritated part then remains usually deeply congested and hot for several hours, only very rarely presenting any vesications.

The great advantage of the linimentum sinapis over any other similar preparation lies in the fact that it produces a remarkably active irritation of the sensory nerves of the skin, which subsides, to a great extent, when the preparation is removed, but which can be renewed almost indefinitely without leading to any eczematous, pustular or ulcerative condition.

NOTES ON REMEDIES.

Alcoholic Stimulants have, as a general rule, proved of no efficacy in these cases, and by some surgeons are considered distinctly contra-indicated.

Aurum. The chloride of gold, and the chloride of gold and sodium, have a strongly specific power over the sexual organs. Dr. BARTHOLOW believes that premature decline of the sexual power in man may be prevented by their use. When the symptoms complained of are weak and inefficient erections, inability for the reproductive act, due to irritability of the organs, diurnal seminal losses, etc., these troubles may be removed by the gold salts. Coldness and lack of passion in women are more certainly cured by these agents than by any other purely medicinal means. As they are actively poisonous substances, they must be used with caution. The dose of the *auri chloridum* is gr. $\frac{1}{16}$ – $\frac{1}{8}$; of *auri et sodii chloridum*, gr. $\frac{1}{2}$ – $\frac{1}{10}$ in pill form, thrice daily. *Auri pulvis* is officinal in Great Britain, gr. ss–ij, thrice daily. In plethora of the sexual organs, they increase the frequency of nocturnal seminal losses.

Belladonna. This drug is recommended by Dr. H. H. TOLAND for invigorating the reproductive organs, especially in persons advanced in years, and those debilitated or partly impotent from excessive masturbation. He combines it with nux vomica or with quinine.

Cannabis Indica. The extract of Indian hemp (hasheesh) is said to exert a strongly aphrodisiac power. It is probable that this, like many manifestations of this drug, is confined to certain temperaments in certain surroundings. Those who have experimented with it have rarely recorded any perceptible exaltation of the venereal sense.

Cantharides. Regulated doses of cantharides are often of great service in impotence. As an aphrodisiac it is of little value, as the erections it causes are devoid of pleasurable sensation, but cautiously used as a stimulant it has important applications.

Cimicifuga. It is asserted by BARTHOLOW that this drug stimulates the venereal appetite in man and promotes the menstrual flow in women. On account of these aphrodisiac effects, he recommends it in those cases in which the organs are relaxed, the erections weak, and the seminal discharges feeble, premature, and liable to occur on slight excitement. It is important that preparations from the fresh root be employed.

Conium. The hemlock has an ancient reputation as a sexual tonic. Combined with iron, in the formula suggested by the late Professor WM. TULLY, M. D., of Yale College, Dr. C. BAKER has lately employed it in various cases of genital exhaustion with good results. (*Cinn. Medical News*, July, 1875.)

SYRUPUS CONII ET FERRI SESQUIOXIDI.

780. R.	Ext. conii maculati,	3v
	Extracti ferri sesquioxidi,	3v ad x
	Syrupi tolutani,	f. 3 ij ad iv
	Olei cinnamomi,	
	Olei gaultheriæ procumbentis,	āā m x
	Sacchari officinalis,	3 ij ad iv
	Spts. vini gallici,	3 ij ad viij
	Aque fontanæ,	q. s. ut fiat mist. Oij. M.

A tablespoonful for a dose. This much contains not quite gr. v of the extract of conium. The dose may be doubled if required. The taste is rather pleasant, and the appetite is increased by it.

Damiana. This product of a Mexican species of *Turnera* has recently been much lauded as a tonic of debilitated sexual organs. The dose is f. 5 j of the fluid extract, three times daily. The testimony regarding its value is conflicting, and it has certainly failed completely in a number of cases, and seems to have succeeded chiefly when combined with steel, strychnine, electricity and other agents which, without it, would probably have led to the favorable result claimed. It is liable to produce digestive disorders, which can be partially obviated by combining it with cinchona and sherry wine. (*New Preparations*, January, 1877.)

Dioscorein. This active principle of *dioscorea villosa*, the wild yam, is stated by Dr. EDWARD R. MAYER (*Hints in Specific Medication*, 1876, p. 18,) to give marked increase in tone and greater sexual vigor to the male genital organs. He employs one-tenth of a grain of dioscorein, rubbed up with sugar, and continues it in this dose, for a considerable time. He does not consider it an aphrodisiac, but a tonic.

Iodinium, gr. j, in syrup, thrice daily, is stated by Dr. SCUDDER to be a stimulant and tonic to the genital organs.

Matico. As an alterative stimulant to diseased mucous membranes, matico is much employed in Peru as an aphrodisiac. It is probably especially useful in cases connected with chronic prostatitis and with abnormal urethral irritability.

Nux Vomica. See Strychnine.

Oleum Morrhuæ.

781. R.	Olei morrhuæ,	
	Syrupi zingiberis,	
	Mucilag. acaciæ,	āā f. 3 ij
	Olei caryophylli,	gtt. vj. M.

A tablespoonful three or four times daily.

Recommended by Dr. H. HARTSHORNE in the wasting which accompanies impotence from spermatorrhœa.

Phosphorus. In many cases of impotence, no remedy is more efficient than phosphorus. It is, of course, adapted to those which are functional in origin, not the result of organic defect. According to Mr. J. A. THOMPSON, it is important that it be given in small tonic doses, gr. $\frac{1}{16}$ – $\frac{1}{8}$, for a long time, and not in larger quantities. Even this, for some constitutions, is a large dose. Its results are often flattering at first, but not permanent, and the patient must be strongly admonished to use his regained power with the utmost moderation. (*British Medical Journal*, 1873.)

Polygonum Punctatum. Smart-weed or water-pepper, f. ʒss–j of the tincture, is spoken of by Dr. J. W. HOWE, of New York, as a stimulating aphrodisiac.

Sinapis. The special stimulant action of mustard is of decided power in atonic impotence. Mr. GAMGEE applies it to the spine over the origin of the genito-crural nerves. (Page 544.) Dr. SAUVAGES recommends that the penis and testicles be immersed for twenty minutes daily in a hot and strong infusion of mustard seed. He reports restoration, by this means, of genital power which had been forfeited for years by early excesses.

Strychnina. As a general nerve tonic, strychnine or nux vomica is indispensable in the treatment of impotence from neurasthenia. It is probable that it is the most generally efficacious agent for that purpose known to the profession; it acts, however, more through a general impression on the system than as an aphrodisiac.

Zinci Phosphidum. This preparation is highly lauded by HAMMOND and others. It may be given gr. $\frac{1}{16}$ – $\frac{1}{8}$, combined with gr. ss of nux vomica.

GENERAL EXTERNAL MEASURES.

Counter-irritation is a means of old renown in the treatment of impotence, and has at times been used to the serious detriment of the patient. Flagellation and urtication are spoken of by classical writers, and have always been known to the vulgar. Of the local stimulants which are most successful and free from danger, mustard, tincture of cantharides and turpentine, are the most reliable. Frictions with horse-radish are also spoken of. Dr. GALL claimed excellent results from applying counter-irritants to the *cerebellum* rather than the lower spine, believing that by so doing he stimulated the nerve-centres which control the sexual faculties. The method deserves trial in appropriate cases.

Douches. The alternate use of hot and cold douches to the organs, perinæum and lower spine, each fifteen minutes at a time, has been praised as an effective revulsive in sexual debility. They may also be directed to the *cerebellum*.

Electricity has been fully considered above. (Page 541.)

Massage, especially the lighter forms, so as to excite a flow of blood to the pelvic muscles and organs, is esteemed in the Orient as an efficient means of repairing powers exhausted by habitual excesses.

Suspension, as described in Vol. I under the head of Locomotor Ataxia, is said to be of some slight value in the treatment of impotence following masturbation.

MASTURBATION. (SELF-ABUSE, ONANISM.)

DR. A. JACOBI, M. D., OF NEW YORK.

The commencement of the habit in young children, and even infants, must be carefully watched for. The treatment in these cases is indicated by the causes which lead to the habit. For excessive phimosis, circumcision; balanitis and balanoposthitis, cleanliness and astringents; stone and gravel, mostly alkaline salts, the majority being uric in the beginning; vesical catarrh, alkalies, tannin, cubebs, hyoscyamus, injections, according to circumstances; constipation, its appropriate treatment, dietetic, anti-rachitical, roborant, laxative (injections); worms, anthelmintics; the acquired nervous derangement, bromide of ammonium or potassium. Dr. ANSTIE administers the bromide of potassium rather in "fierce activity of mind and body" than in the effects of masturbation. *Lupulin* and *camphor* have proved very serviceable. Regulations as to feeding include the avoidance of all substances irritating to the bladder. Regular bathing and constant occupation under careful supervision, are urgent requisites. The children must not be permitted to sit on the floor too long. When the symptoms of an attack exhibit themselves, take them up and occupy their body and mind. Force is often required. They must not remain in bed after waking up. Infibulation, as advised by CELSUS, might be replaced by an artificial sore on the surface of the penis. At all events, there are many cases which exercise, to the utmost, both the watchfulness of the attendants and the ingenuity of the medical adviser.

Important amongst the therapeutical indications are those referring to the general influences produced upon the whole nervous system by the constant irritation of a large number of peripheric nerves.

The symptoms of irritation are soothed and relieved by the above-mentioned sedatives; those of masturbation, and exhaustion resulting therefrom, by a general roborant treatment and nerve tonics, amongst which Dr. JACOBI places *strychnine* foremost, *iron* and *arsenic* next. The affections in which they are principally indicated are neuroses, either of the nerve centres, such as epilepsy and chorea magna, or of a peripheric nerve, or a number of nerves or nerve complexes. The form in which peripheric nerves are generally affected, is that of hyperæsthesia or neuralgia, terms which are not used as identical, because medical men have agreed to employ the latter where the sensations are changed for a longer term, or where a positive lesion can be detected in the nerve itself.

Strychnine is remarkable for speedily restoring the impaired nerve power, provided the doses are not too small, and the mode of administration the appropriate one. A child of five years ought not to take less than $\frac{1}{4}$ part of a grain in the course of a day, of either the sulphate or nitrate. Larger doses are frequently not only tolerated but required. The best mode of its administration, however, is not by the mouth, but subcutaneously. A single daily dose of a twentieth part of a grain of the sulphate of strychnine in water, will fully suffice. (*American Journal of Obstetrics*, June, 1876.)

SIR JAMES PAGET.

In the mental treatment of masturbation, it is especially important that the groundless fears of the patient as to the terrible results of the habit be dispelled. Our author says:

"I believe you may teach positively that masturbation does neither more nor less harm than sexual intercourse practiced with the same frequency in the same conditions of general health and age and circumstances. Practiced frequently by the very young, that is, at any time before or at the beginning of puberty, masturbation is very likely to produce exhaustion, effeminacy and over-sensitiveness and nervousness, just as equally frequent copulation, at the same age, would probably produce them. Or, practiced every day, or many times in one day, at any age, either masturbation or copulation is likely to produce similar mischiefs, or greater. And the mischiefs are especially likely or nearly sure to happen, and to be greatest, if the excesses are practiced by those who, by inheritance or circumstances, are liable to any nervous disease—to spinal irritation, epilepsy, insanity, or any other. But the mischiefs are due to the

quantity, not to the methods, of the excesses; and the quantity is to be estimated in relation to age and to the power of the nervous system. I have seen as numerous and as great evils consequent on excessive sexual intercourse as on excessive masturbation; but I have not seen or heard anything to make me believe that occasional masturbation has any other effects on one who practiced it than has occasional sexual intercourse, nor anything justifying the dread with which sexual hypochondriacs regard the having occasionally practiced it."

While in a general sense these remarks of this eminent authority are undoubtedly correct, and are held by many others of great erudition, the fact of the usually youthful age of the masturbator (at least at first), the frequency of the act, and the fact that having the means of gratification always about (the slightest contact of the hand or the nearness of the hand to the genitals, is often sufficient to rouse impure thoughts, and secondarily a congestion), must make one hesitate to accept them in entirety. From the frequent occurrence or persistence of this congestion, must easily arise disturbances which may eventually lead to actual harm, as the formation of varicocele.

DR. C. B. MILLER, OF INDIANA.

This writer gives the following directions (*American Practitioner*, May, 1877):

It is indispensable that the habit of solitude, and the inclination to indulge the imagination, be broken up, and some healthy, active employment substituted, and the victims compelled to mingle with others and go into society.

Plain, substantial food must be insisted upon, and oysters, eggs, chestnuts, wines, spices, etc., avoided. The patient should sleep on a hard mattress, lightly covered as the state of the atmosphere will admit, retire early, and rise immediately on awaking in the morning. The bowels must be carefully regulated, as the presence of scybala in the rectum frequently excites the propensity. Tonics should be given when indicated, astringent injections used to relieve leucorrhœa, or applications to the prostatic portions of the urethra, and any eruptions about the genitals appropriately treated and the utmost cleanliness enforced. Running sewing-machines, dancing and horse-back riding, should be interdicted.

Aside from these general directions, moral treatment is about the only kind that promises success, though it may be aided by the ad-

ministration of camphor, chloral, the bromides, belladonna and digitalis. From a pretty extensive experience with the remedy, he is inclined to attach more importance to *digitalis*, as an anaphrodisiac, than to any other medicine.

DR. HENRY P. WENZEL, OF LOUISVILLE.

782. R.	Tincturæ pulsatillæ (German), Aquæ,	f. ʒij f. ʒiv.	M.
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A teaspoonful four times daily.

This herb, in the dose given above, is said by this writer to be superior to bromide of potassium. The pulsatilla lessens sexual excitement, but does not diminish sexual power. He claims that after using it a week, the onanist loses the desire of practicing the hurtful habit. (*Louisville Medical News*, March, 1877.)

OPERATIVE PROCEDURES.

Blisters.—The application of a blister by means of the cantharidal collodion is sometimes employed to check a confirmed masturbator, a good portion of the penis being painted with the preparation. Like most other such measures, it is only partially successful as a rule.

Castration.—In certain very obstinate cases, castration, at the request of the patient, has been resorted to. It is a last resort which, however, is probably never necessary.

Clitoridectomy.—In the female, the *removal of the clitoris*, strongly advocated and practiced some years ago by Mr. I. BAKER BROWN, of London, is undoubtedly occasionally a simple and efficient means to check the habit. When the practice threatens injury to the intellect, and has not yielded to ordinary medication and remonstrance, the organ should, according to this authority, be removed, the excision including the corpus cavernosum clitoridis, and the major portion of the erectores clitoridis. The profession, however, has not, as a body, accepted the propriety of this operation, partly because in some instances it has signally failed to break the habit, partly because even if successful, its after consequences, in reference to the marital relations, might be most unpleasant. The simpler operation of infibulation would be positively efficacious, and leave no mutilation behind it.

Circumcision.—Where the prepuce is long and a source of irritation, circumcision should be performed without hesitation. It must

not, however, be regarded as a preventive of or even a safeguard against the habit. Jews frequently masturbate.

Infibulation.—One of the most valuable of all operative preventives is infibulation. This was in common use in ancient Rome, both to prevent masturbation and coition. The best method is to pierce the prepuce, close to the extremity of the glans, with a sharp-pointed silver wire, the ends of which should then be firmly fastened together, and the loop thus left in the part. It rarely causes any troublesome irritation. It may be practiced with equal success on girls, the *fibula* being made to penetrate the labia major.

Scarification.—A sore may be established on the prepuce or clitoris which will temporarily prevent handling the organ.

ORCHITIS (EPIDIDYMITIS).

DRS. VAN BUREN AND KEYES, OF NEW YORK.

In mild cases, rest on the back with elevation of the testicle, aided by a light, hot flaxseed poultice and a laxative, is sufficient.

In severe cases, rest on the back and elevation of the testicle above the abdomen are indispensable. To effect this, apply a bandage around the waist, and fold a large handkerchief in the shape of a triangle; place the base of the triangle under the scrotum, tie one acute angle on each side to the waistband, and bringing the right angle over the testicles and penis, pin it to the waistband; sew a tape to that portion of the sling immediately under the scrotum, carry it between the nates and attach it to the waistband.

Having arranged this, put the patient to bed, and envelop the testicle from the start with a *tobacco poultice*.

783. R. Fine-cut tobacco,	℥ i
Hot water,	f. ℥ x
Bring to a boil while stirring briskly, and add:	
Powdered flaxseed,	q. s.
To bring to the proper consistency.	

Apply to the part as hot as can be borne, and cover with a piece of oiled silk. Renew every eight hours. Ordinarily, the testicle will be nearly painless in a few hours.

When the pain is exceptionally acute, and the cord is strangulated,

ten to fifteen leeches above the groin, along the course of the cord, will often calm the pain as if by magic. When the pain is owing to the extreme distension of the tunica vaginalis with fluid, a puncture to let this out is followed by striking and immediate relief.

Strapping the testicle is difficult to perform in a proper manner, but deserves more favor than it has received at the hands of surgeons.

The hardness of the testicle, which is apt to remain ordinarily, disappears of itself in a few weeks. Its departure may be hastened by keeping the testicle constantly in a suspender covered by oiled silk, so as to keep up heat and moisture. Mild mercurial ointment sometimes hastens the absorption.

No internal medicine exerts much influence on the disease. Urethral injections should not be used, but other gonorrhœal treatment may be continued, if called for.

In syphilitic orchitis, a thorough anti-syphilitic treatment is demanded, including large doses of *iodide of potassium*.

DR. ROBERTS BARTHOLOW.

784.	R.	Ammonii muriat.,	3ij	
		Spir. vini rectific.,		
		Aquæ,	āā	f. 3ij. M.

For a lotion.

Cloths moistened with this solution, frequently applied, form an excellent discutient application. When the acute symptoms have subsided, but the swelling of the testicle remains, it may be removed by painting with the dilute *tincture of iodine*, or by applying a solution of the *oleate of mercury*,

785.	R.	Hydragryi oleati,	℥j-3ij	
		Morphinæ sulphatis,	gr. viij	
		Acidi oleici,	f. 3j.	M.

For local application with a brush.

MR. H. G. KNAGGS, ENGLAND.

This gentleman, in the *British Medical Journal*, November, 1875, reports a method of treating orchitis which, he says, he has for many years found very effective. It consists in the more or less constant application, while the patient is resting, of a lotion of tinctura arnicæ and water, (one part of the former to six of the latter) to the affected organ; secondly, in rubbing in an embrocation composed of one-third, or even one-half, tincture of arnica and soap liniment, two or

three times a day, along the course of the spermatic cord; and thirdly, in the internal administration of seven-drop doses of tincture of arnica, combined, when there is febrile disturbance, with two-and-a-half drop doses of Fleming's tincture of aconite and acetate of ammonium. This simple treatment, he says, generally cures the patient in a fortnight or less.

MR. C. H. MOORE, M. R. C. S., MIDDLESEX HOSPITAL, LONDON.

The testicle is first immersed in water as hot as can be borne, and kept in it from ten to fifteen minutes, immediately to be followed by a stream of cold water poured over it from a height for five minutes. The latter causes a certain amount of itching pain, and, by contracting the dartos, corrugates the scrotum, speedily diminishing the size of the testicle, with subsidence of the inflammation and pain, the patient experiencing relief in a very short time. The hot and cold water may have to be repeated two or three times a day for a few days, but frequently the patient is so far recovered in the course of four-and-twenty hours as to be able to follow his usual avocation without any inconvenience, requiring no further treatment beyond the continuance of the suspensory-bag.

PROF. RICORD, OF PARIS.

786. R.	Emplastri hydrargyri,		
	Extracti conii,	āā	3ijss
	Extracti opii,		gr. xv. M.

Spread on a piece of leather of convenient size, and apply in cases of orchitis or sub-acute bubo.

PROF. DIDAY, OF LYONS.

787. R.	Extracti belladonnæ,	3iss
	Tincturæ iocinii,	f. 3iss.

Moisten the extract with fifteen to twenty drops of water, and add the tincture. Spread on the skin by a camel's-hair pencil.

In consequence of its adhesion to the skin, it acts more effectually than an ointment. It is particularly useful in the treatment of epididymitis when the acute inflammation has been appeased by bleeding and baths.

DR. WILLIAM H. HIGGINS, OF ENGLAND.

This gentleman states (*Lancet*, 1876,) that he has invariably found one of the following methods, combined with saline aperients, etc., bring about a rapid cure.

Whenever the tenderness admits of it, whatever the extent of inflammation and swelling, he immediately proceeds to strap the inflamed testicles; but to insure effectual support to the distended vessels, deep and superficial, by the equable pressure and intimate adherence of the plaster, he first carefully isolates the swelled testicle, and renders the scrotum tense over the tumor by tying a strong strip of lint above it, leaving a rounded swelling, with a kind of pedicle. This strapping (not the lint) is replaced from time to time as it becomes loose and wrinkled, from subsidence of the swelling. The whole scrotum is also well supported. This method generally permits return to work on the spot.

When, from delay and neglect, the strapping cannot at first be borne (which rarely happens), he at once applies *extract of belladonna* mixed with sufficient simple ointment to enable it to spread on lint (the extract is soft enough alone in warm climates), to the inflamed surface. Light pressure with a bandage, rest, support to the scrotum, and constitutional measures, as aids to the anodyne, speedily remove the pain. The belladonna may be renewed as often as it becomes dry. When the first pain and tenderness are somewhat alleviated, he resorts to the strapping as described above, and conducts the case to a certain favorable termination.

These methods, contrasted in practice with the use of the knife, or the slow and tedious remedies usually employed, have everything in their favor—remove the pain at once, permit speedy or even instant return to work, and insure rapid cure in a humane manner.

DR. L. D. WATERMAN, OF INDIANA.

This writer, in the *American Practitioner*, 1877, claims excellent results with the following:

788. R.	Tincturæ iodinii,	
	Aquæ ammoniæ,	
	Tincturæ opii,	
	Olei olivæ,	q. s.
		M.

The iodine and ammonia are added in quantity just sufficient to be bearable, and only cause half-blistering of the skin, or exfoliation with a stinging sensation for a short time after application. Thus graduated to the supposed endurability, the free application of it is made to the entire surface of the scrotum, and the woollen cloth saturated with the liniment, with which it is hourly (if possible) applied, is wrapped around the scrotum, and left there continually.

The pain ceases, sometimes, within three hours, always within twenty-four, and the effusion is correspondingly rapidly absorbed without tapping.

MR. CURLING, OF ENGLAND.*

The use of *ice* in orchitis, so highly esteemed by this eminent surgeon, seems to have fallen into unmerited neglect. His plan of proceeding is to keep the patient in bed, with the testicle well supported by a handkerchief, or, what is better, by a crutch-pad applied transversely beneath the testicles, the piece of bandage attached to each end of the pad being passed above the crest of the ilium and secured around the body. The ice is to be applied to the testicle by enclosing it in a small bladder or in an india-rubber-bag with a somewhat narrow neck. This may be suspended from a cradle placed over the body, and the cold must be sedulously maintained by frequent renewal of the ice. The patient should be provided with two bladders or bags, one to take the place of the other as the ice melts. The effects of the application are remarkable. The scrotum becomes blanched, shrunk and corrugated; the pain and heat are entirely removed, and in a few hours the enlargement of the gland is found much diminished.

DR. A. RICHARDSON, M. R. C. S., OF ENGLAND.

789. R.	Extracti belladonnæ,	3ij	
	Glycerini,	f. ʒ ss	
	Aquæ,	f. ʒ j.	M.

For local use.

The mixture is about the consistence of cream, and should be laid on thickly over the whole scrotum, a piece of lint, moistened in the same, applied, and the testicle supported in a handkerchief, sling-wise, which may be fastened to a second tied round the loins. It gives rapid and complete relief, the pain in the loin disappearing in about six hours, while it does not prevent the patient from going about his business. (*Lancet*, 1876.)

DR. JOHN KENT SPENDER, OF LONDON.

This author (in the *Medical Examiner*, August, 1878,) calls attention to the possibility of curing orchitis without surgical interference. The plan he adopts is to administer antimony in small and

* *Diseases of the Testes*. Fourth edition.

repeated doses for at least twelve to fourteen hours. He narrates a case of a young man who had received a blow on the left testicle, and who was seen a few days afterwards. Recourse was had to hot local applications, and a draught containing

790. R.	Vini antimonalis,	℥xx	
	Tincturæ opii,	℥ij	
	Aquæ menthræ,	f. ʒj.	M.

This amount every hour for twelve hours, and then at longer intervals.

Pain was relieved simultaneously with the establishment of a profuse diaphoresis. Within three days the man was virtually well.

The same mode of administering other drugs may be adopted with benefit, as in many cases success depends upon keeping the medicine constantly in the system.

DR. EDWARD WARREN, OF BALTIMORE AND PARIS.

This surgeon, late chief of the surgical staff of the Egyptian army, states in the *Lancet*, April, 1876, that after an extensive experience both in hospital and private practice, he has abandoned the employment of ice, poultices, punctures, leeches, etc., in the treatment of acute orchitis, in favor of the following simple plan, which has proved pre-eminently successful.

By means of an ordinary hypodermic syringe, inject beneath the tunica vaginalis from one-sixth to one-quarter of a grain of morphine, with one-hundredth of a grain of atropine, in solution, and then strap the organ firmly with adhesive plaster. Place the patient upon his back, elevate the pelvis, support the testicle, and administer:

791. R.	Potassii bromidi,	ʒj	
	Tinct. gelsem. semper.,	gtt. xv	
	Extr. fld. ergotæ,	f. ʒj	
	Aquæ cinnamomi,	f. ʒ ss.	M.

This amount every third hour.

Repeat the hypodermic injection of the morphine at intervals of eight hours, if necessary, until a grain has been administered, and readjust the adhesive plaster as the swelling and sensitiveness diminish.

In a large majority of cases a decided improvement will manifest itself within three or four hours, but should no amelioration ensue, discontinue the hypodermic injections, and supplement the treatment by the application of a narrow blister on either thigh, immediately over the femoral vessels.

SPERMATORRHOEA.

HYGIENIC MEASURES.

All authors agree that in this complaint the medical treatment must be actively supported by proper hygienic measures to insure any degree of success.

The *food* should be generous and nutritive, easily digested, but plain. Highly-spiced dishes, tea, coffee and most stimulants, should be avoided, especially at and after supper. Very little fluid should be taken at tea, and none after, as the filling of the bladder strongly predisposes to emissions. Tobacco and opium must not be used in any form.

The patient should sleep in a cool, well-ventilated room, on a hard bed, by himself, with but light bed-covering, and avoid sleeping on his back by tying a towel around the waist with a knot over the spine. He should sedulously avoid every form of venereal excitement, whether social, by reading, thought or conversation.

Every morning he should sponge the parts in cold water, or, what is better, take a cold sitz-bath. This should not be taken before retiring, as the reaction brings an excess of blood to the part and predisposes to emissions. Cold water enemata are often very salutary.

The bladder should be frequently emptied, especially on going to bed at night, and again at four or five o'clock in the morning. With many patients it is during the morning nap that the emission occurs, owing to the pressure of the urine accumulated during the night. The urine should always be tested, and if found acid, alkalies should be administered to counteract its irritating qualities.

The bowels should be maintained in a laxative condition by moderate doses of salines. Not unfrequently the pressure of retained fæces in the rectum is an exciting cause of emission. Irritation in the rectal canal, from any other source, as hemorrhoids, ascarides, etc., will have the same effect, and must be treated as occasion demands.

Moderate daily exercise in the open air, or in a cool, well-ventilated room, is essential. Both walking and riding, especially the latter, are, however, contra-indicated. Cases of spermatorrhœa, brought on by the friction of the saddle, are not infrequent. Those varieties of exercises which bring into play the muscles of the upper

extremity, and erector-spinae mass, are particularly desirable (rowing, the pulley, quoits, bowling, etc.).

NOCTURNAL EMISSIONS: MECHANICAL PREVENTIVES.

In most cases nocturnal pollutions are accompanied by erections, complete or partial. When this is the case, mechanical preventives are often useful.

Dr. MONIERE, of Paris, has invented a very ingenious apparatus, to which he has given the name of *electro-medical alarm*. A small, very light ring is attached in front of the pubis by cords; two cords make the ring communicate with the poles of a pile; the penis is introduced into the ring so that contact takes place, but no kind of pressure; on the contrary, as soon as the penis becomes erect, the smallest pressure makes the battery to work. In order not to disturb neighbors, the bell is made very feeble, but then it is necessary that an india-rubber tube should make the bell communicate with the ear. When the patient commences to use this instrument, the spermatorrhœa almost altogether disappears gradually, and his general condition greatly improves. (*The Doctor*, June 1st, 1877.)

The use of *spermatorrhœal rings* is occasionally valuable. They are armed on the inner side with a projecting point, leaving sufficient space for the penis when flaccid, but as soon as it enlarges the point presses painfully and the patient awakes. A simple arrangement keeps them in place at night.

A *spermatorrhœal truss* has been lately devised, which, in certain cases, may prove of advantage.

GENERAL TREATMENT OF SPERMATORRHOEA.

PROF. S. D. GROSS, M. D., OF PHILADELPHIA.

Spermatorrhœa may and may not be associated with impotence; but it is always connected with genital weakness.

The first indication for treatment is to ascertain the probable cause.

It may, like impotence, be induced by the irritation of an elongated or constricted prepuce; by an accumulation of smegma under the prepuce; by narrowed meatus urinarius; by stricture of the urethra; by stone in the bladder; by hemorrhoids; fissure of the anus; ascarides in the rectum; obstinate constipation; excessive venery; but the great cause is *masturbation*.

In mild cases, a proper regulation of the diet and bowels, cold bathing, sleeping on a hard mattress, and the removal of the exciting cause, usually suffice. When the parts are morbidly sensitive, leeches may be applied to the perinæum, and the following urethral injection used:

792.	R. Plumbi acetatis, Pulv. opii, Aque,	\bar{aa}	gr. iij $\frac{i}{\text{ss}}$.	M.
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Use for an injection twice daily.

When the disease is fully established, more energetic measures are required. In many cases, *cauterization* is the best means, with solid nitrate of silver, conveyed to the spot of greatest sensitiveness in the urethra, by means of a porte-caustique. An application of five or ten seconds, once a week, until the morbid sensibility is destroyed, is sufficient. Occasionally, marked relief arises from cold enemata, repeated twice in the twenty-four hours. Leeches, or a blister to the perinæum, may be called for if the local excitement is unusually great. When the morbid sensibility of the urethra is very extensive and persistent, the following may be employed:

793. R.	Argenti nitratis,	gr. ij	
	Pulveris opii,	gr. v	
	Aquæ,	f. 3 j.	M.

Use twice daily for a urethral injection, to be forced back as far as possible, and remain two or three minutes in the canal.

The daily insertion of a full-sized bougie, for half an hour at a time, is sometimes an efficient means. The morbid erections are to be controlled by anodyne enemata, or the following pill at bed-time:

794.	R.	Pulv. opii,	gr. j	
		Extract. belladonnæ,	gr. ss	
		Ant. et potassii tartratis,	gr. $\frac{1}{6}$.	M.
For one pill.				

Sexual abstinence and, of course, cessation of masturbation, must be positively enjoined.

Should there be reason to believe that the emissions are dependent on cerebellar irritation, the nape of the neck should be leechd and blistered. As a sexual sedative, one of the best is:

795. R.	Potassii bromidi,	gr. xx-xxx	
	Tincturæ aconiti,	gtt. v	
	Aquæ camphoræ,	f. 3 ss.	M.

This amount three times daily.

The following may be also used with excellent effect:

796.	R.	Ammonii bromidi,	℥i	
		Tincturæ cypripedii,	f. 3j.	M.

This amount thrice daily.

797.	R.	Elixir cinchonæ,	f. 3 iss	
		Acidi nitrici diluti,	gtt. viij	
		Strychninæ sulphatis,	gr. ʒi	M.

This quantity to be taken three times daily.

Also,

798.	R.	Morphinæ sulphatis,	gr. ¼	
		Butyri cocoæ,	q. s.	M.

For a suppository, to be introduced into the bowels at bed-time.

DRS. W. H. VAN BUREN AND E. L. KEYES, OF NEW YORK.*

With constant attention to hygienic and local measures, the use of the steel sound and electricity will give tone to the parts. The use of a local astringent to the parts is often of marked advantage.

799.	R.	Tannici acidi,	3j	
		Glycerini,	q. s.	M.

Make a stiff paste.

This is to be inserted into a "cupped sound" (an ordinary steel bougie with several depressions, about as large as a pea, along its sides.) and the sound, previously well oiled, rapidly carried down the urethra until the cups rest in the prostatic sinus. Here it is retained from one to five minutes, thus melting off more or less of the tannoglyceral paste. This should be repeated twice weekly. Should this fail, prostatic injections with the deep urethral syringe may be used, of a solution of nitrate of silver, not stronger than gr. v-x to the ounce. The use of the fused nitrate of silver is not justifiable.

Nocturnal Emissions.—When such emissions do not exceed three a week they should be disregarded, as they are probably physiological; when more frequent, the usual hygienic and general means must be adopted, and also certain special measures. The patient should develop his muscular system, and fatigue himself with physical labor. Dry frictions and the cold douche in the morning are beneficial. He should sleep on a hard bed, lightly covered. The stomach should not be full on retiring, and the bladder should be thoroughly emptied the last thing at night. To prevent lying on the back, in which position pollutions are particularly apt to occur, a

* *Diseases of the Genito-Urinary Organs.* New York, 1876.

towel with a hard knot over the spine should be fastened around the waist. Bromide of potassium, camphor and lupulin may be given internally with strychnine and a mineral acid. Locally, decided advantage may be derived from the gentle use of the steel sound, or of the "cupped sound" with tannin (as above described). If the pollutions are traceable to a sensitive glans penis, circumcision should be performed.

PROF. H. H. TOLAND, M. D., SAN FRANCISCO.*

Spermatorrhœa is very generally the result of masturbation, and to its cure the cessation of this habit is absolutely necessary. The nitrate of silver treatment, so highly commended by LALLEMAND, has proved an utter failure in the hands of Dr. TOLAND. He has never seen the slightest benefit from the porte-caustique. As a tonic to act specifically upon the genital organs, in cases of local atony, he prefers this combination :

800. R.	Quininae sulphatis,		3j	
	Pulveris rhei,			
	Extracti nucis vomicae,	āā	3ss	
	Extracti belladonnae,		gr. xij.	M.

For thirty pills. One four times a day.

In cases accompanied with daily emissions, with debility, constipation and indigestion, if the above pills do not produce the desired effect, the following combination may be prescribed :

801. R.	Extracti sennae fluidi,		f. 3 iij	
	Tincturae nucis vomicae,		f. 3 ix	
	Tincturae belladonnae,		f. 3 ijss	
	Tincturae aconiti,			
	Acidi hydrocyanici diluti,	āā	f. 3 iss.	M.

A teaspoonful four times a day.

Such patients should have a nourishing diet and avoid indigestible food. They should be temperate, take moderately active exercise, and observe the usual laws of health.

In cases where there is excessive local irritability, with good general health, Dr. TOLAND, under all circumstances, prescribes the following mixture :

802. R.	Potassii bromidi,		3v	
	Extracti sennae fluidi,		f. 3 iij	
	Tincturae belladonnae,		f. 3 ijss	
	Tincturae aconiti radiceis,			
	Acidi hydrocyanici diluti,	āā	f. 3 iss	
	Syrupi simplicis,		f. 3 ijss.	M.

One teaspoonful four times a day.

* *Lectures on Practical Surgery*, 1877.

Under this treatment, great improvement will, as a rule, be perceptible in a short time.

DR. MALLEZ, OF PARIS.

The alkaline bromides, in the opinion of this writer, deserve the highest place. (*La Mouvement Medical*, June, 1873.)

803. R. Potassii bromidi, Syrupi toluani, Aquæ,	$\overline{3}$ i f. $\overline{3}$ j f. $\overline{3}$ ix.	M.
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A dessertspoonful four times a day.

The administration of the bromide should precede any local treatment, and may be continued from eight days to two months without harm.

After the lapse of ten or twelve days, *continuous currents* should be applied, though there is some difference of opinion in regard to the manner in which they should be applied. M. MALLEZ himself prefers to make use of descending currents, passing down the whole length of the spinal cord, from the occipital to the lumbar region, the source of the electricity being from eight to ten elements of a Gaiffe's pile, with chloride of silver. After using this for eight or ten days, the direction of the current may, with advantage, be reversed.

The application of *cold-water douches* to the belly should not be indiscriminately recommended, as they occasionally seem to excite rather than to repress the discharges. In order to subdue inflammation of the prostatic portion of the urethra, and to diminish its sensitiveness, the best means are, in the first place, the introduction of *bougies*, as in the preparatory treatment of lithotrity, but with this difference, that a longer interval must be allowed to elapse between each operation, lest the reverse result to that hoped for be obtained. The ointments containing belladonna, or morphine, or iodine, are utterly valueless. Dr. MALLEZ has, however, observed benefit result from the injection of *carbonic acid*. The mode in which this is effected is by the use of two flasks, one containing hydrochloric acid and the other fragments of marble, united by a piece of india-rubber tubing; a second piece of tubing, having an elastic ball, in which the carbonic acid is closed up, is connected with a catheter; a stop-cock regulates the supply; and the part to which the stream of gas is applied is determined by the depth to which the catheter is introduced into the urethra, M. MALLEZ has a high opinion of *suppositories*, and recommends one composed as follows:

804. R. Morphinæ muriatis,
 Pulv. stramonii,
 Butyri cocœ,
 Make into eight suppositories.
- āā gr. viij
 ʒij. M.

Suppositories of iodoform are also useful. Purgatives must be given for constipation, and anthelmintics, if required.

DR. J. J. KIMBERLIN, OF CINCINNATI.

This physician, believing that in many cases spermatorrhœa is due to an excessive sensibility of the urino-seminal vessels, especially of the prostatic portion of the urethra, has succeeded by external treatment with anodyne ointments:

805. R. Extracti aconiti solidi,
 Extracti conii,
 Tum adde Adipis,
 For an unguent.
- 3ij
 3j
 ʒss-j. M.

With this the perinæum is thoroughly rubbed twice or three times a day (say on rising and retiring) for a month or six weeks. The beneficial effects in suitable cases should be visible in a week or two. As some persons are extremely susceptible to the effects of aconite applied to the skin, the weaker form of the ointment should be used in small quantities at first, and increased in strength as rapidly as the patient can bear it.

PROF. A. P. LANKFORD, ST. LOUIS.

If the spermatorrhœa can be traced to irritable prostate, this writer (*Medical Herald*, December, 1871,) recommends urethral injections, as:

806. R. Zinci acetatis,
 Aquæ,
 For one injection. Use twice daily.
- gr. iv
 f. ʒ iv. M.

When there is unusual irritability of the parts, mild alkaline diuretics and injections of acetate of lead or tannic acid are called for. For nocturnal emissions, belladonna is most useful.

MR. G. G. GASCOYNE, OF LONDON.

This writer (*British Medical Journal*, 1872,) speaks unfavorably of strychnine, belladonna, cantharides and phosphorus. For the local irritability which leads to emissions he has most frequently succeeded with:

807. R. Pulveris camphoræ, ℥ij
 Pulveris opii, gr. x-xx
 Pulveris aloës socotrinæ, ℥j-ij. M.
 For twenty pills. One or two to be taken at bedtime.

He highly commends ergot, given in the fluid extract, combined with dilute sulphuric acid. Tincture of matico he has also found of good service.

DR. ROBERTS BARTHOLOW.

808. R. Oleoresinæ capsici, ℥j
 Extracti aquosi ergotæ, ℥ij. M.
 Make twenty pills. One three times a day, in impotence and spermatorrhœa from deficient tone.

Spermatorrhœa and impotence dependent on a relaxed state of the seminal vessels may be greatly improved by *arseniæ of iron*:

809. R. Ferri arseniatis, gr. v
 Ergotæ extracti aquosi, ℥ss. M.
 Make thirty pills. One, night and morning.

When there is a codition of plethora with spermatorrhœa, iron is contraindicated. The appropriate remedy then is the *bromide of potassium*. It is best given in full doses, gr. xx-5j, at night. When the genitalia are relaxed, the emissions flowing without force, and without a distinct dream and orgasm, *belladonna* is most useful.

PROF. D. HAYES AGNEW, OF PHILADELPHIA.

This teacher considers cantharides not advisable in spermatorrhœa with debilitated powers. He "knows no better treatment than phosphorus and strychnia:"

810. R. Strychninæ sulphatis, gr. ij
 Phosphori, gr. j. M.
 To make fifty pills. One three times a day.

The diet should be nutritious but not rich, the suppers light, the bladder kept well emptied, and the rectum free from irritation.

PROF. ZEISSL, OF GERMANY.

811. R. Acidi phosphorici diluti, gtt. xxj
 Quininæ sulphatis, ℥j
 Pulv. camphoræ, gr. v
 Extracti cascarillæ, q. s. M.
 Make twenty pills. One or two of these two or three times daily.

812. R. Extracti quassiae, gr. ij
 Ferri sulphatis, gr. j
 Pulv. cinnamomi, gr. ½. M.
- For one pill. Two thrice daily in atonic spermatorrhœa.

DR. D. CAMPBELL BLACK, M. R. C. S., OF GLASGOW.

This author invariably treats spermatorrhœa with narcotics and tonics. He claims for camphor, opium, belladonna and hyoscyamus the first rank as narcotics; and for a tonic there is nothing equal to the *tinctura ferri chloridi*, in large doses. His prescriptions are:

813. R. Pulveris camphoræ, gr. xviii
 Pulveris opii, gr. xij
 Extracti hyoscyami, q. s. M.
- Make twelve pills. One every night.
814. R. Tincturæ ferri chloridi, f. ʒj.
- Forty to sixty drops thrice daily in a wineglassful of water.

He considers hyoscyamus and belladonna equally valuable.

DR. GUIPON, OF PARIS.

815. R. Lupulinæ, āā gr. ix
 Camphoræ pulveris, gr. iss. M.
 Extracti belladonnæ, .
- Divide into ten pills. From two to five a day, in spermatorrhœa. Cold lotions to the perinæum, hydropathy, tonic and reconstituent diet.

PROF. NIEMEYER, OF TUBINGEN.

816. R. Liquoris barii chloridi, gtt. v-x.
- This amount three times a day, after eating.

The *terra ponderosa* recommended by this author may be given in the officinal form, as above. So far as we have known it used in this country, it has not merited his encomiums.

DR. ULTMANN, OF VIENNA.

In treating spermatorrhœa, this writer (*Wiener Medicinische Presse*, 1876,) insists upon the gravity of the disease, and the necessity for active treatment. The most efficacious measure is *catheterism*; but one must use a large catheter, of metal, and it must be inserted every day and allowed to remain in for twenty or thirty minutes, and this treatment must not be interrupted for six or eight weeks.

Next to this in efficacy is local cauterization. Dr. U. does not

use the pure nitrate, but cocoa butter containing one-twentieth part of nitrate of silver, six grains of which mixture he introduces by means of Dittel's positor. When the parts are too irritable for this, he employs:

817. R.	Morphinæ muriat.,	gr. iss	
	Acidi tannici,	gr. vij	
	Butyri cocœ,	gr. xxx.	M.
Divide into six parts.			

For internal treatment, he has found nothing better than full doses of ergot.

Believing that catheterism is much aided by *cold*, Dr. WINTERITZ has invented a sound with a double canula, but without a fenestra, through which a stream of cold water can be directed.

Dr. BLISS, of Boston, uses steel bougies, which he previously immerses in cold water. (*New York Medical Journal*, VII., 146.)

In any case, the bougie or catheter should be of a *large* calibre, so as to exert effective pressure on the vessels surrounding the prostatic urethra.

DRS. GEORGE M. BEARD AND A. D. ROCKWELL.

It is hardly necessary to say that no one method of *electrization* will answer in all cases of spermatorrhœa and seminal emissions. A decidedly harmful method of procedure is that by strong galvanization of the ejaculatory ducts, or the parts in their immediate vicinity, by means of the insulated catheter electrode.

It is true that if employed with great caution, and with a current of very feeble power, no harm may result. Currents of considerable electrolytic power, even, may frequently be borne without any after ill effects; but it is equally true that these same applications, whether weak or strong, have in numbers of instances been followed by profound and lasting irritation.

In lieu of this procedure, and in addition to the external methods of treatment, these authors are in favor of the application of the faradic current to the urethra, and on the same principles and to meet the same indications, that the occasional introduction of the ordinary catheter is attempted. Mechanical pressure alone tends to unload the congested capillaries; and very decidedly to lessen the sensibility of the urethral nerves, and when combined with the vibratory action of the faradic current, its good effects are markedly increased.

NOTES ON REMEDIES.

Ammonii Bromidum is an effective sedative of the genital nerves. ʒss-ʒj may be given at night.

Atropina. Gr. ʒss daily, at night, has proved of signal benefit in spermatorrhœa from relaxation and dilatation of the ejaculatory ducts.

Barii Chloridum is recommended by Professor NIEMEYER. (F. 816.)

Camphora is an ancient and renowned anaphrodisiac (*Camphora per naves, castrat odore mares*). Full doses, gr. xx, diminish the venereal appetite and the vigor of the erections. Hence it is valuable in nocturnal seminal losses and excessive venereal sensibility. The following combination is valuable :

8r8.	R.	Ergotinæ,	ʒij	
		Can phoræ,	ʒj.	M.

Make thirty pills. Three or four a day, or two at bed-time.

Monobromated camphor is a useful form of the drug in this affection ; dose, gr. ij-x.

Capsicum has valuable applications in this disease. The tincture may be administered.

Carbonicum Acidum may be employed as directed by Dr. MALLEZ. (Page 563.)

Conium is occasionally of service. (F. 805.)

Dulcamara. The bitter-sweet is said to possess decided sedative properties on the venereal sense. Dr. GEORGE B. WOOD states he has seen it administered with good effect in cases of mania with marked erotic excitement. It has also been employed with asserted advantage in spermatorrhœa, having a controlling influence on the secretions. The usual officinal doses are those recommended.

Ergota is a valuable adjuvant to other remedies. (F. 809.)

Ferrum is constantly employed. BARTHOLOW prefers the *arseniate* (F. 809) ; BLACK the tincture of the chloride (F. 814) ; SWAYZE the ammonio-sulphate ; ZEISSL the sulphate (F. 812). Probably there is no great difference which is chosen.

Gallicum Acidum. A tablespoonful of the saturated solution, thrice daily, has been recommended.

Gelsemium is said by Dr. EDWARD R. MAYER (*Hints on Specific Medication*) to be extremely useful in irritation of the bladder and posterior portion of the urethra. One dose at night will check nocturnal emissions, and is a certain preventive of chordee. Other writers corroborate its value in this disease.

Humulus. A favorite prescription in the New York hospital is :

819. R.	Tinct. humuli,	f. 3vj	
	Tinct. camphoræ,	f. 3iv	
	Tinct. opii,	3ij	
	Syrup. tolutani,	q. s. ad 3iv.	M.
Teaspoonful in water at night.			

Lupulina is employed by Drs. GUIPON and COSTELLO. (F. 815.)

Phosphorus is relied upon by Professor AGNEW, especially as combined with cantharides. (F. 810.)

Potassii Bromidum is an invaluable sedative. (F. 803.)

Strychnina is much used to give tone to the nervous system. (F. 810.)

Tannicum Acidum is employed locally. (F. 799.)

Veratrum Viride is a potent agent for controlling the priapism associated with some cases of spermatorrhæa.

Zincum. The acetate and sulphate are employed for injections. Dr. J. WARRING CURRAN says the *oxide* is a drug of the greatest efficacy in seminal emissions. He combines it with camphor and conium.

VARICOCELE.

(See also p. 395, under "*Varicose Veins*.")

The numerous operations suggested for the radical cure of varicocele indicate that there is none wholly satisfactory to surgeons; and the occasional deaths from pyæmia recommend the employment, in preference, of some less dangerous means of cure. The most promising of these is by *compression*. In the majority of cases this is preferable to any more violent means of treatment, and in a large proportion favorable results may be expected. The pendent parts are to be supported, while moderate compression is made immediately over the external abdominal ring. To make the pressure an ordinary hernia truss may be used, with a perinæal band to keep it perfectly in position. The aim is to make such an amount of pressure as will moderately compress the veins at this point, and maintain it night and day, the truss only being removed for purposes of cleanliness.

Owing, however, to the annoyance of the truss, and the objection to allowing the blood to continue its vertical direction, the following plan of suspension, suggested by Mr. MORGAN, professor of surgical anatomy in the University of Dublin, has many advantages: The

testis is enclosed in the "suspender," which consists of a piece of web about three and a half inches wide at one end, four and a half inches long, four inches wide at the other, and cut gradually tapering to the narrow end. A piece of thick lead wire is stitched in the rim of the smaller end, and the sides are furnished with neat hooks, a lace, and a good tongue of chamois leather, two tapes being sewn along the entire length of the web, which are afterwards attached to the suspending belt. The application is easily made by the patient in the morning before rising, and when the parts are relaxed, laying the affected organ, while in the dependent position, in the "suspender," and lacing up the hooks with a moderate degree of tightness, then raising it up and attaching the tapes to the suspending belt previous to rising from bed.

The size of the "suspender" must, of course, vary more or less, but the measurements named will suit an ordinary case; the lead wire encircling the lower end gives a foundation to the general means of support, and keeps the testis within the suspending bag; the patient can mould it more or less to his convenience. Of course, as in every appliance of the kind, a certain amount of discretion must be used as to wearing the suspender; for the first few days it should not be kept on constantly; the parts should be sponged night and morning with cold water or a cold lotion, used so as to fortify the skin, as any chafing must be avoided. In all cases the suspender is best omitted at night.

Dr. EDWARD R. MAYER states that he has obtained the most satisfactory results in cases of varicocele by applying lotions of tincture of *hamamelis virginica*, diluted with water.

XV. VENEREAL DISEASES.

Gonorrhœa, Acute and Chronic—Gonorrhœal Complications and Sequels (Chronic Prostatitis, Gonorrhœal Orchitis, Inflammatory Oedema of the Prepuce, Gonorrhœal Ophthalmia and Conjunctivitis, Gonorrhœal Rheumatism, Stricture of the Urethra)—Syphilis, Primary and Constitutional (The Chancre, Syphilodermata, Mucous Patches, Sore Throat, Syphilitic Laryngitis, Congenital Syphilis)—The Chancroid (Suppurative Bubo).

ACUTE GONORRHŒA.

PROF. EDWARD MARTIN, OF PHILADELPHIA.

Prof. MARTIN, in a most able resumé of the treatment of acute anterior gonorrhœa (*International Clinics*, 1892), gave the following instructions to his class in the University of Pennsylvania:

The majority of surgeons are opposed to the so-called abortive treatment of acute gonorrhœa, but a recent article from the pen of the renowned French surgeon, DIDAY, defends the practice and instances cases in which it has been successful, and the author has been able, in some of the cases in which he has tested the method, to substitute for the specific disease which would run a course of from five to seven weeks, a non-specific urethritis, which was entirely well at the end of seven days. The patient should be seen very early if this abortive method is to be employed—before the discharge has become markedly purulent and the lips of the meatus puffed and everted, while the discharge is yet mainly mucus and epithelium. Where the inflammatory symptoms are well marked, it is probable that the micro-organisms of the disease have penetrated so deeply into the mucous membrane, and have so irritated it, that a strongly germicidal injection would not only be little liable to reach them easily, but would be apt to greatly intensify the irritation and do damage rather than good. If, however, the patient is seen in time, the treatment may be begun as follows: "A solution of nitrate of silver, eighteen grains to the ounce, is drawn into a blunt-pointed syringe, the aperture of the syringe is inserted within the meatus, the penis is grasped firmly with the ring and middle fingers of the left

hand, one and a half inches behind the meatus, and is compressed so that the urethra is completely obliterated at this point, and, whilst the thumb and index finger hold the meatus closely about the nozzle of the syringe, the nitrate of silver is driven in with some force so that the navicular fossa is widely dilated. After a minute the quantity of fluid first injected is allowed to escape, and a fresh portion is forced in in the same manner." This procedure is repeated several times, the pressure of the fingers preventing the entrance of the solution back further than one and a half inches from the meatus. The patient may then be given some antiseptic, as salol, which will render the urine more or less germicidal, and some bland diuretic, as citrate of potassium. FRIEDHEIM (*Therap. Monatsh.*, 1889,) advises a weak (1:4000) solution of nitrate of silver as the most widely applicable and best.

The patient should be cautioned that this treatment is uncertain, and may fail to cut short the disease, and that in case it succeeds, the discharge will be bloody for from three to five days and the symptoms will then rapidly subside, so that complete recovery will be established by the seventh or eighth day. If the injection does no good it can do little harm, since it is limited to the anterior end of the urethra, the point where in acute gonorrhœa the most frequent point of infection is found.

This abortive treatment is still *sub judice*. If the ordinary, systematic course of treatment is decided upon, the conditions being unfavorable for abortive measures, the patient should be cautioned that the condition will last from five to seven weeks, perhaps longer, and that his comfort depends on the strict observance of rules announced to him. He is to be particularly careful as to cleanliness, and strict care must be taken to prevent inoculation of the virus to the eyes through touching the conjunctiva with the fingers that have been in contact with the gonorrhœal discharges. Regular evacuations from the bowels must be secured, as by means of some mild saline water in the morning after arising. The writer prefers Hunyadi water for this purpose. Where salines are not efficient or well borne, cascara sagrada or aloin, strychnine and belladonna, should be used. The diet should be light, skimmed milk or buttermilk largely. Alcoholics should be avoided; so, too, highly seasoned food, pastry, puddings, and meat in any large amount. Large quantities of liquids should be drunk, as Apollinaris, Vichy, or plain soda water. The stomach should be kept in the best possible condition,

and for this reason the patient must, on the other hand, not flood his stomach with liquids, as this is apt to do harm. Mental and physical exertion during the acute stage should be avoided. The patient should in every way possible prevent libidinous thoughts, which tend to cause congestions of the generative organs.

For the purpose of diminishing local congestion, Dr. MARTIN advises hot baths of fifteen or twenty minutes' duration before retiring.

Where the inflammatory symptoms are not especially acute, from the first an anti-gonorrhœal mixture may be given, such as the following, suggested by Prof. J. WILLIAM WHITE:

820. R.	Oleoresin of cubebs,		
	Balsam of copaiba,	āā	gr. v
	Salol,		
	Pepsin,	āā	gr. j. M.

In a capsule.

Sig.—From four to ten such a day, if borne.

Or the following, known as the "Lafayette Mixture," may be employed, its efficiency in subduing the discharge being well established:

821. R.	Balsam of copaiba,		
	Compound spirit of lavender,	āā	℥xv
	Sweet spirit of nitre,		℥x
	Oil of gaultheria,		℥viij
	Solution of potassium hydrate,		℥iij
	Mucilage of acacia,	q. s. ad f.	℥j. M.

Sig.—This dose from four to six times daily. If objected to, the mixture may be given in capsules, omitting the mucilage of acacia.

It is well not to use injections while the discharge is thickly purulent, yellow, green or blood-stained; later, when the discharge has more the appearance of milk-and-water, the injections may be better undertaken, although in cases of a distinctly mild type injections may be used with benefit from the first.

The patient should, first of all, now be taught to inject the medicated solutions into the urethra properly. The syringe used for this purpose should contain from six to eight fluid drachms, with a blunt extremity so as to avoid the danger of injuring the urethral membrane. An ordinary hard rubber syringe is often used, or a simple bulb with a blunt nozzle may be used, and has the advantages of simplicity and of being easily kept clean. The patient should seat himself in a relaxed position, hold the body of the penis between the ring and middle fingers of the left hand, and with the thumb and forefinger spread apart the lips of the meatus. The nozzle of the syringe is then applied to the meatus, the lips pressed together

about it, and the solution slowly pressed out of the syringe until a feeling of distension is felt about the perineum, showing that the compressor urethrae muscle has contracted and is preventing the fluid from further entrance. The syringe is then removed and the meatus held shut for a few minutes. The patient should urinate before the injection. From four to six injections should be made daily.

In a mild case, if injections are determined upon from the first, those earliest used should be of an antiseptic nature, as this one of Prof. WHITE'S:

- | | | | |
|---------|---------------------------|-----------------------|----|
| 822. R. | Bichloride of mercury, | gr. $\frac{1}{8}$ | |
| | Sulpho-carbolate of zinc, | \mathfrak{z}^{ss} | |
| | Boric acid, | \mathfrak{z}^{ij} | |
| | Peroxide of hydrogen, | f. \mathfrak{z} vj. | M. |
- Sig.—Use as an injection. Dilute with water until no pain is excited.

The nitrate of silver solution, diluted as may be demanded, is also to be recommended in these cases. The following is used in the genito-urinary clinic of the University Hospital:

- | | | | |
|---------|-----------------------------|-----------------------|----|
| 823. R. | Fluid extract of hydrastis, | f. \mathfrak{z} ij | |
| | Subnitrate of bismuth, | \mathfrak{z}^{ij} | |
| | Glycerine, | f. \mathfrak{z} ij | |
| | Water, | f. \mathfrak{z} iv. | M. |
- Sig.—As an injection from four to six times a day.

When this does not seem to modify the discharge sufficiently rapidly, the following may be substituted:

- | | | | |
|---------|-----------------------------|-----------------------|----|
| 824. R. | Sulpho-carbolate of zinc, | gr. viij | |
| | Fluid extract of hydrastis, | f. \mathfrak{z} ij | |
| | Glycerine, | \mathfrak{z}^{ij} | |
| | Water, | f. \mathfrak{z} iv. | M. |

Or, ULZMANN'S formula may be employed:

- | | | | |
|---------|-------------------|----|-----------------------|
| 825. R. | Sulphate of zinc, | | |
| | Powdered alum, | āā | gr. vj-xij |
| | Carbolic acid, | | gr. iv |
| | Water, | | f. \mathfrak{z} vj. |
| | | | M. |

Or, the following rather popular prescription:

- | | | | |
|---------|----------------------|----------|-----------------------|
| 826. R. | Sulphate of zinc, | gr. xv | |
| | Acetate of lead, | gr. xx | |
| | Tincture of opium, | | |
| | Tincture of catechu, | āā | f. \mathfrak{z} ij |
| | Water, | q. s. ad | f. \mathfrak{z} vj. |
| | | | M. |

Permanganate of potash has been advised in these cases, but in Dr. MARTIN'S experience it is not to be compared in general effectiveness with the above prescriptions. Carbolic acid (1:400) solu-

tions, varying in strength with the effect produced on the urethral mucous membrane, are often of considerable value as injections.

Prof. MARTIN cautioned the class to persist in the treatment sufficiently, and not to regard a case cured when the bulk of the discharge has disappeared but there still remains the "morning drop" and there are to be seen "clap-shreds" in the urine of the morning. These "clap-shreds" are thread-like bodies of mucus, holding pus in their meshes. A patient in this condition is not cured, and is liable to a relapse if permitted to resume the ordinary functions of life. When the discharge has all disappeared, or when the shreds of mucus in the urine of the morning contain but little pus, if any, the treatment may be gradually stopped, the injections being stopped by one a day until one is taken daily. Then one may be taken every two, three and four days for a time, and finally quitted entirely. A week or more after the last injection the patient may report again for the last examination.

DRS. VAN BUREN AND KEYES, NEW YORK CITY.

These experienced writers do not countenance the abortive treatment in any form. The only one at all allowable is by means of exceedingly mild injections, as that recommended by NIEMEYER:

827. R. Acidi tannici, Vini rubri,	gr. v f. ʒj.	M.
---------------------------------------	-----------------	----

This can do no harm, at any rate.

The *hygienic* treatment of gonorrhœa is often sufficient in mild cases. This consists of total abstinence from sexual activity, alcoholic beverages, violent exercise, and salt and highly-seasoned food. A frequent warm bath, and a suspensory bandage for the testicles, if they are sensitive, are also required.

The medical treatment varies, as the disease is in the increasing, stationary, decreasing or gleet stage.

Increasing Stage.—The patient, if he will, had better go to bed. Internally, the following alkali should be given:

828. R. Potassii citratis, Spiritus limonis, Syr. simplicis, Aquæ,	ʒ ss-j f. ʒ ss f. ʒ ij f. ʒ j.	M.
---	---	----

A dessertspoonful, largely diluted with water, three or four times a day, fasting.

The bicarbonate of potash may be used instead of the citrate, and gr. j–ij extract of hyoscyamus added, if micturition is quite painful.

The balsams and injections are of doubtful advantage in this stage

of true gonorrhœa, but in bastard gonorrhœa, and in mild urethritis, they are of great importance from the first, as :

829. R. Liq. plumbi subacetatis diluti, f. ℥ j
 Extracti opii aquosi, gr. vj.
 Mix and strain.
830. R. Zinci sulphatis, g. j-ij
 Liq. plumbi subacetatis diluti, f. ℥ j. M.
 Shake before using. One similar to these may be used from twice to four times daily, after micturition.

Secondary Stage.—When the inflammatory symptoms reach a certain high grade and tend to remain there, it is well to recommend rest, and to apply leeches to the perinæum (not less than fifteen or or twenty.) *Sandal-wood oil* or *copaiba* may now be given in increasing doses, up to the limits of tolerance of the stomach. Capsules are the most convenient form to use for either of these. The maximum dose must be maintained for a week. If improvement is not manifest by that time, *cubebæ* should be tried instead of the balsam: or a combination. For chordee, *lupulin*, ℥j-ij on retiring, is of undoubted service; or:

831. R. Extracti opii aquosi, gr. ij
 Camphoræ pulveris, gr. iv. M.
 For two pills; one or both on retiring.

The urine should be kept dilute and alkaline, and the bladder emptied.

In the *decreasing stage*, hygiene and alkali should be continued, and the balsam or oil of sandal-wood pushed. If *copaiba* is well borne and properly administered, it is the most efficient of the anti-gonorrhœal remedies. *Cubebæ* may best be given as the *olco-resin* in capsules. Dr. BUMSTEAD'S formula for combining the two is:

832. R. Copaibæ, ℥ ij
 Magnesiæ, ℥ j
 Olei menthæ piperitæ, gtt. xx
 Pulveris cubebæ,
 Bismuthi subnitratæ, āā ℥ ij. M.
 Divide into five-grain pills. Dose, five or ten.

AUGUSTE CULLERIER, PARIS.

833. R. Copaibæ, f. ℥ v
 Cubebæ, ℥ iv
 Spiritûs menthæ piperitæ, q. s. M.
 Electuary. From four to five drachms a day are given.

This formula is one of the most frequently employed at the Hôpital du Midi.

For the *abortive* treatment of gonorrhœa, our author uses large doses of copaiba (℥.5iv-v a day) or cubebs (5v-vij a day). He considers them more valuable than any of the abortive injections. They are to be employed only, however, when the gonorrhœa is of recent date, when there is little or no pain, and where the discharge is not as yet muco-purulent.

Under favorable circumstances, when the abortive treatment is thus employed, the discharge will diminish or disappear in the course of four or five days. The treatment should not then be suspended, but, on the contrary, continue for several days after the cure is apparently complete. If this precaution be neglected, the inflammation may re-appear. If, after from six to eight days, no improvement is manifest, it is useless to persist longer in this form of treatment. Astringent injections should not be combined with this use of the balsam. They have no advantage at this early period of the disease, and often keep up an amount of irritation which may interfere with the effect of the internal remedy.

When the inflammatory period of the gonorrhœa is over, CUL-
LERIER advises injections to complete the cure.

The following injections are those most frequently prescribed at the Hôpital du Midi:

- | | | | | |
|---------|--|----|--------------------|----|
| 834. R. | Zinci sulphatis,
Plumbi subacetatis,
Aquæ, | āā | gr. xv
℥. 3 iv. | M. |
| 835. R. | Aluminis,
Aquæ, | | 3 iss
℥. 3 iv. | M. |
| 836. R. | Acidi tannici,
Aquæ, | | gr. vij
℥. 3 j. | M. |

Two injections a day are sufficient. Before each injection the patient should urinate.

KOSTER (*Wien. Med. Presse*, 1890,) highly commends the use of a one per cent. solution of ichthyol in the form of sulph-ichthyolate of ammonium as an injection in gonorrhœa. On the second day of treatment the painful micturition and chordee disappeared, and the discharge stopped in from four to twenty days.

LUTAUD (*L'Union Méd.*, 1890,) is favorably disposed to the use of creolin in the later stages of gonorrhœa:

- | | | | |
|---------|--|------------------------------|----|
| 837. R. | Creolin,
Extract of hydrastis canad.,
Water, | gtt. x
3 ss
℥. 3 viij. | M. |
|---------|--|------------------------------|----|

To be used without dilution as an urethral injection.

DR. THOMAS F. BETTON, OF PHILADELPHIA.

This physician (*Medical Times*, October, 1871,) has found, by many years experience, that weak injections of acetate of lead, gr. j-ij to rose-water f. ʒj, assisted by a cold sitz-bath morning and evening, is sufficient in all cases of simple clap, when taken early. He considers the abortive treatment by strong injections as both useless and pernicious.

DR. LOUIS BAUER, OF ST. LOUIS.

This surgeon strongly recommends the simple treatment of acute gonorrhœa. In addition to the usual hygienic rules, he prescribes:

838. R. Inf. sem. lini (ex ʒiij parati), f. ʒ vj
 Extr. opii aquosi, ℥ xvij. M.
 Use as an injection, warm, every three hours, and retain for a few minutes.

It is advisable first to clean the urethra with a warm-water injection. The discharge diminishes at once. Toward the end, a very weak solution of acetate of lead, gr. $\frac{1}{3}$ to the ounce, may be alternated with the above.

DR. N. GALLOIS, OF PARIS.

839. R. Acidi tannici, ʒj
 Opii pulveris, gr. iv
 Glycerini, q. s. M.
 Make into *urethral suppositories*, which, soft in summer, are quite solid during the winter.

They are to be moistened with warm water and introduced into the urethra, where a piece of the length of about an inch and a half is to be allowed to remain. This quickly dissolves and turns into a whitened mass in mixing with the urethral mucus. Treated in this manner, it is said that the most violent cases are cured in from one to three weeks.

840. R. Copaibæ, f. ʒ iv
 Spiritus menthæ piperitæ, ℥ xx
 Mel. despumati, f. ʒ iss
 Sacchari, ʒ iss
 Aquæ destillatæ, f. ʒ iij. M.

Place the copaiba, the honey, the sugar and the water in a vessel, and warm over a slow fire, constantly stirring, to avoid a too great elevation of the temperature and to favor the division of the oleo-resin of copaiba. At the end of ten minutes remove from the fire, color the mixture and add the peppermint after cooling. The product thus obtained, nearly deprived of the odor of copaiba, is of a gelatinous consistence, and can be administered to those who cannot take the ordinary preparations.

DR. WILLIAM A. HAMMOND, NEW YORK.

In simple gonorrhœa, after the discharge is well established, reliance should be placed upon injections.

The following mixture of copaiba is capable of doing more good than the uncombined balsam, and it is not much more disagreeable to the taste or stomach :

841. R.	Copaibæ,	f. ℥ ij	
	Spiritus ætheris nitrosi,	f. ℥ j	
	Tincturæ opii,		
	Tincturæ iodinii,	āā f. ℥ j	
	Magnesiæ,	℥ ij	
	Mucilaginis acaciæ,	f. ℥ v.	M.
One or two teaspoonfuls thrice daily.			

No internal treatment should be depended upon to the exclusion of injections.

Stimulants should be avoided, as should also *salt meat*.

MR. BERKELEY HILL, F. R. C. S., LONDON.

In the early stage, copaiba and cubebs are not beneficial, and only two injections are of any service, viz., half-hourly injections of tepid water, or hourly injections of alum or sulphate of zinc, gr. $\frac{1}{4}$ to aquæ f. 5j. The former are often useless, and the latter, if they increase the irritation, are to be stopped.

SUPPOSITORY FOR CHORDEE.

842. R.	Morphinæ sulphatis,	gr. $\frac{1}{8}$ -ss	
	Butyri cocoæ,	gr. x.	M.
To be passed into the rectum on going to bed.			

When the pain is violent, thirty to forty drops of tinctura opii, in a wineglassful of decoction of starch, should be injected.

Our author has repeatedly found of service in chronic gonorrhœa the following capsule divided by Sir HENRY THOMSON :

843. R.	Extracti cubebæ ætherialis,		
	Olei copaibæ,	āā ℥ iv	
	Picis liquidæ,	℥ ij.	M.
For one capsule. One three or four times a day.			

A very useful formula for injection is that of the "four sulphates:"

844. R.	Zinci sulphatis,		
	Ferri sulphatis,		
	Cupri sulphatis,		
	Aluminis,	āā gr. x	
	Aquæ,	f. ℥ viij.	M.

The solution is not used in its full strength at first, but, the first day, is diluted with three times its bulk of water. If severe smarting follow, it is further diluted. Its strength is gradually increased until its full strength is used or the discharge stops. This being attained, it is diminished in strength step by step until plain water is reached. In this plan ten days should be employed.

The following prescription for an injection in gonorrhœa is given in the *Deutsch. Med. Wochensch.*, 1890, as used by BRINDISI:

845. R.	Antipyrine,	3j	
	Sulphate of zinc,	gr. vij	
	Cherry-laurel water,		
	Rose water,	āā · f. 3 ijss.	M.

DR. J. D. HILL, ROYAL FREE HOSPITAL, LONDON.

846. R.	Glycerini acidi tannici,	f. 3 iij	
	Olei olive,		
	Misturæ acacie,	āā f. 3 j.	M.

This injection our author has extensively employed in hospital and private practice. It should be used in the following manner: The bladder having been first emptied, the bottle containing the lotion is to be well shaken, and about two drachms of it briskly poured into a saucer, and quickly drawn into a syringe. The penis is then to be held in the left hand, with the thumb and little finger respectively placed upon the superior and inferior portions of that organ, close to the symphysis pubis, and the fore and middle fingers resting in like manner upon the superior and inferior surfaces of the glans, close to the meatus urinarius. The syringe, with the piston withdrawn, is now to be taken up with the right hand, and the nozzle, as far as the shoulder, carefully passed into the urethra. The thumb and little finger must press the root of the penis, to prevent the passage of any fluid beyond that point. When a sense of tension is felt, the syringe may be withdrawn; but the front fingers must previously be so applied as to compress the glans, and thus prevent any escape of the fluid. Next, with the thumb and forefinger of the right hand, the fluid in the urethra is to be set in motion, and so kept for four or five minutes.

This will be attended with a gurgling noise, from the mixture of air and fluid. Thus, when the injection has insinuated itself within the folds and lacunæ of the urethra, it is allowed to escape. In this manner, it is asserted, the bladder is protected on the one hand, and, on the other, there is a certainty of the fluid being applied to the whole of the affected surface.

Glycerinum acidi tannici, used in the above recipe, is officinal in the *British Pharmacopæia*. It is made by rubbing together in a mortar one ounce of tannic acid and four ounces of glycerine, then transferring the mixture to a porcelain dish, and applying a gentle heat until complete solution is effected.

M. LUC, a French military surgeon, uses in gonorrhœa, when the discharge is without pain, an injection of a thin paste of finely-powdered starch and hot water.

The following prescriptions for injections are attributed to JULLIEN :

847. R.	Liquid vaseline,	140	
	Bismuth subnitrate,	10	
	Resorcin,	3	
	Iodol,	1.	M.
848. R.	Mercury salicylate,	gr. j	
	Sodium bicarbonate,	gr. xv	
	Distilled water,	f. ʒ ivss.	M.

This is stated to be especially serviceable in the second stage of gonorrhœa.

The use of solutions of bicarbonate of sodium (1:100) has been commended also by CASSELAU, (*Four. de Med. de Paris*, 1890.)

In the last mentioned journal SILBERMINZ is said to use :

849. R.	Salicylate of mercury,	gr. iij	
	Distilled water,	f. ʒ iv	
	Gum arabic,	sufficient to make an emulsion.	M.

Sig: Shake well before using, and inject a small syringeful three times a day.

The following prescriptions are quoted in the *Medical News*, 1891 :

850. R.	Opium,	gr. viij	
	Acacia,	gr. viij	
	Saffron,	gr. xv	
	Boiling water,	f. ʒ v	
	Make an infusion and add		
	Acetate of lead,	gr. xx	
	Sulphate of zinc,	gr. xlvi.	M.

Use as an injection in the later stages of gonorrhœa.

In place of this may be employed :

851. R.	Pyridine,	gtt. vj-viij	
	Distilled water,	f. ʒ ijs.	M.

Use three or four injections of this daily.

DR. FRANK F. MAURY, OF PHILADELPHIA.

The above abortive treatment is objectionable on account of its tendency to leave strictures.

The patient should avoid all sexual excitement; all alcoholic beverages (the least harmful is claret); highly-seasoned meats; asparagus; violent exertion. Locally a routine practice must be avoided. One thing, however, should never be neglected; that is, to teach the patient—

How to Make a Urethral Injection.—Let him first empty his bladder, then stand over a chamber, retract his foreskin, and hold his penis, with his thumb on one side and his finger on the other, so as to close the meatus against the nozzle of the syringe, never holding above and below, for that spreads the meatus. Then let him inject about a fluid-drachm, slowly and deliberately. There is no danger of forcing the injection into the bladder, and no pains need be taken to prevent it. After the injection is in, let it be gently worked backward and forward along the urethra, to distribute it nicely, and retain for a few minutes. Then let it come away, as much as will flow off readily.

The nozzle of the syringe should not be longer than about three-eighths of an inch, because often the trouble is close to the orifice of the urethra, and a longer nozzle would prevent the injection coming well in contact with it.

This application is best made in the morning, after the daily stool, again about noon, and again about five or six o'clock; not just before bed-time, as is sometimes recommended. The manipulation tends to increase the tendency to chordee, and should not be made just before going to bed.

As for particular formulæ, one can use a mixture containing vegetable and mineral astringents, say:

852. R.	Tincturæ matico,		
	Tincturæ catechu,	āā	f. 3j
	Extracti opii aquosi,		gr. xvj
	Plumbi acetatis,		gr. x-xij
	Glycerini,		f. 3iv
	Aquæ rosæ,		f. 3vss. M.

One may substitute for the acetate of lead sixteen grains of sulphate of zinc, or of the baborate of zinc.

There is another form of injection, which acts by making a coating for the inflamed membrane. It consists of bismuth held in suspension, which, when injected, gives a mechanical protection:

853. R.	Bismuthi subnitratiss,		3ij
	Glycerini,		f. 3iv
	Aquæ rosæ,		f. 3vss. M.
Shake well when used.			

And the following internally :

854. R. Tincturæ sanguinariæ,
 Tincturæ kino,
 Balsami copaibæ,
 Spiritûs ætheris nitrosi, āā f. ℥ j
 Olei gaultheriæ, f. ℥ j. M
- A teaspoonful every four hours. With these use large diluent drinks.

SILAS DURKEE, M. D., BOSTON.

855. R. Copaibæ, f. ℥ iij
 Spiritûs ætheris nitrosi, āā f. ℥ ss
 Tincturæ kino, gr. iv
 Morphinæ sulphatis, f. ℥ ij. M.
 Aquæ camphoræ,
 One teaspoonful thrice daily.

Usually, an efficient check will be put to the gonorrhœa in eight or ten days by the use of this preparation.

856. R. Pulveris cubebæ, ℥ viij
 Pulveris aluminis, ℥ i
 Pulveris cinnamomi, ℥ j. M.
- For thirty-two powders. One thrice daily.

This combination of cubebs and alum will usually diminish the urethral discharge in two or three days, and if the patient will observe a perfectly quiet state of the body, he will find that in eight or ten days the gonorrhœa will be nearly at an end. The strictest avoidance of exercise constitutes an important element in the treatment of every case of gonorrhœa, and the patient should even keep in a recumbent posture in order to secure the best effects in the shortest time.

As with the balsam copaiba, so with cubebs; they should not be discontinued under a fortnight after the cessation of the urethral discharge.

The tincture is an elegant and convenient form of administering cubebs. It may be given in doses of f. ℥ j–ij four or five times a day, or combined thus :

857. R. Tincturæ cubebæ, f. ℥ ij
 Tincturæ cantharidis, f. ℥ iss
 Morphinæ sulphatis, gr. ij
 Aquæ camphoræ, f. ℥ iij. M.
- A dessertspoonful thrice daily, in half a gill of cold water.

Or the fluid extract may be used in this manner :

858. R. Extracti cubebæ fluidi, f. ℥ iv
 Morphinæ sulphatis, gr. ij
 Mucilaginis acaciæ, āā f. ℥ ij. M.
 Aquæ camphoræ,

Our author also recommends the following formulæ of Drs. DRUITT, LANGSTON PARKER, BEYRAN and HOLMES COOTE:

- | | | | |
|---------|---------------------|----------------------|----|
| 859. R. | Copaibæ, | f. $\frac{3}{4}$ ss | |
| | Olei cubebæ, | f. $\frac{3}{4}$ ss | |
| | Liquoris potassæ, | f. $\frac{3}{4}$ iij | |
| | Spiritus myristicæ, | f. $\frac{3}{4}$ ss | |
| | Aquæ camphoræ, | f. $\frac{3}{4}$ j. | M. |
- Two teaspoonfuls thrice daily.

The combination of copaiba with the oil of cubebs, as above, will sometimes be found to agree better with the stomach than the capsules or any other combination.

In chronic gonorrhœa, or gleet, the balsam and the cubebs may be advantageously combined with iron, as follows:

- | | | | |
|---------|--------------------|-----------------------|----|
| 860. R. | Pulveris cubebæ, | $\frac{3}{4}$ ss | |
| | Copaibæ, | f. $\frac{3}{4}$ ij | |
| | Ferri sulphatis, | $\frac{3}{4}$ i | |
| | Terebinthinæ olei, | f. $\frac{3}{4}$ iij. | M. |

To be made into boluses of gr. x each. From fifteen to thirty a day; usefully employed in lax constitutions.

- | | | | |
|---------|-------------------|---------------------|----|
| 861. R. | Pulveris cubebæ, | $\frac{3}{4}$ j-ij | |
| | Ferri carbonatis, | $\frac{3}{4}$ ss-j. | M. |
- For one powder, to be taken thrice daily.

The above is particularly useful after the acute symptoms have subsided.

Our author employs the following in gleet:

- | | | | |
|---------|-----------------------|------------------------|----|
| 862. R. | Tincturæ cantharidis, | | |
| | Olei terebinthinæ, | aa' f. $\frac{3}{4}$ j | |
| | Mucilaginis acaciæ, | f. $\frac{3}{4}$ ij. | M. |
- A teaspoonful thrice daily.

PROF. J. WILLIAM WHITE, OF PHILADELPHIA.

Prof. WHITE, in a paper read before the American Association of Andrology and Syphilology held at Altoona, Penna., in 1890 (*Med. News*, 1890), after detailing his former routine practice in the treatment of gonorrhœal cases, called the attention of the Association to his recent trial of salol in the treatment of the affection in all its stages. He had prepared and kept in stock by a prominent druggist capsules containing:

- | | | | |
|---------|-------------------------|-----------|----|
| 863. R. | Salol, | gr. iijss | |
| | Oleoresin of cubebs, | gr. v | |
| | Para balsam of copaiba, | gr. x | |
| | Pepsin, | gr. j. | M. |

These he prescribed to 72 cases of gonorrhœa occurring in his private practice, and found in almost all, chronic as well as acute, markedly beneficial results. Of these, 53 cases were acute, and in all but two, in whom violent indigestion prevented a thorough trial of the remedy, a distinct and unmistakable effect was produced upon the discharge. In about two-thirds of the cases the discharge stopped the first week of treatment, but Prof. WHITE found it necessary to continue the remedy for some time longer to prevent the return of the discharge. In none of the cases did any gonorrhœal rheumatism manifest itself, although among the patients studied were several who had never before had an attack of gonorrhœa with freedom from joint trouble. Prof. WHITE, from his experience and from that of Mr. ERNEST LANE (*London Lancet*, 1890,) believes that it will be advantageous to increase the amount of salol in the above prescription to two or three times the quantity.

He believes that the "internal administration of salol, in combination with cubebs and copaiba, renders the urine aseptic, and probably antiseptic, so that it acts as an exceptionally thorough and efficient antiseptic injection, shortening the duration of the disease and diminishing the frequency and severity of the complications."

Mr. LANE, in the paper referred to, states that the salol should be given in doses of from ten to twenty grains three times daily, and in chronic cases an astringent injection will materially hasten the cure. He first used five-grain doses, but found them too small; more than twenty grains in no wise increased the efficiency of the drug.

Dr. BRANSFORD LEWIS, of St. Louis (*Med. News*, 1890), advises the use of ointments directly applied to the diseased mucous surfaces, claiming that in this way the membranes are soothed and the inflamed surfaces are prevented from rubbing on one another, while the medication is kept constantly in contact with the seat of the affection. He uses as the base for his medications a bland, unctuous substance known as albolene, which is inert and does not become rancid. He applies the ointments through perforated soft catheters attached to a bulb filled with the ointment, pressure upon the bulb causing the ointment to be expelled into the urethra.

DR. THOMAS R. NEILSON, OF PHILADELPHIA.

In a communication to the *Univ. Med. Magazine*, 1890, Dr. NEILSON, for years chief of the venereal clinic in the University of Pennsylvania Hospital Dispensary, stated that his results from the em-

ployment of the nitrate of silver method in acute gonorrhœa had been most satisfactory. He uses a solution of 1:3000 strength, diluting or increasing its strength in special cases. This method has already been detailed in the first citation of this chapter, the only difference between Dr. NEILSON's and Dr. MARTIN's practice being in the strength of the solutions used.

Dr. NEILSON thus describes his usual plan of treatment before his employment of the above method, and since then in cases not suited for the abortive treatment. The plan "has consisted, first, during the earliest stage of the disease, in the administration of an alkaline sedative mixture, with the purpose of alleviating the scalding caused by urination, the tendency to frequent micturition and to chordee. The standard formula in my dispensary practice has been :

864. R.	Potassii acetatis,	℥ iij-℥ ss	
	Potassii bromidi,	℥ iss	
	Acidi borici,	℥ ij-℥ ij	
	Tincturæ belladonnæ,	℥ xxx	
	Liq. potassii, citratis,	f. ℥ viij.	M.

Dose.—Tablespoonful in water every three or four hours.

"Secondly, as soon as these symptoms were in a measure relieved, the administration of either oleoresin of cubebs and balsam copaiba in capsule, or of cubebs alone in powder, in teaspoonful doses, or finally, where chordee was troublesome, a combination of two parts, by weight, of powdered cubebs and one part of bromide of potassium, given in the same doses, and from three to four times daily.

CHRONIC GONORRHŒA, GLEET.

DR. W. A. HAMMOND.

In the management of the chronic stage of simple gonorrhœa, or *gleet*, the affected individual should be placed upon a good, plain, nutritious diet, and the mind and body pleasantly and systematically employed. The greatest benefit is derived from cold plunge-baths, followed by frictions of the skin with coarse towels or hair-brushes. As internal remedies, use :

865. R.	Ferri sulphatis,	gr. ij	
	Quininae sulphatis,	gr. ss.	M.
For one pill thrice daily.			

The oxalate or citrate of iron may be substituted in the same

dose. In addition, our author has derived great benefit from the use of the following recipe:

866. R. Tincturæ cantharidis, Strychninæ, Syrupi limonis,	f. ℥ ss gr. j f. ℥ iij.	M.
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A teaspoonful morning and evening.

Injectiōns should be persevered with, changing one for another, as they lose their effect.

In his late monograph on gleet,

DR. J. C. O. WILL, OF LONDON,

Recommends, as the best and safest of all remedies for the cure of gleet, "the passage, once or twice a week, of a cold, well-oiled metallic bougie, combined with the internal use of cantharides or ergot."

DRS. VAN BUREN AND KEYES, OF NEW YORK.

Gleety Stage.—The urine must be kept mildly alkaline; the provocation of sexual excitement interdicted; one of the balsams or cubebs administered; a stimulating or astringent injection employed; and careful search must be made for the presence of stricture, which is a frequent cause of the extreme obstinacy of gleets.

Nearly all known drugs have been vaunted for injections in urethral discharges, but only a few hold their place. Of these may be mentioned *permanganate of potash* (gr. j–iij to f. ℥j) alone, or combined with a small amount of sulphate of zinc; *sulphate of copper* (gr. j to f. ℥j); *persulphate of iron* (℥ss to f. ℥vj); and finally alcohol, best employed in RICORD'S formula:

867. R. Vini rubri, Aque rosæ,	f. ℥ iij f. ℥ iv.	M.
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The wine to be gradually increased until it is used pure.

Glycerine or morphine may be combined with any of the above formulæ with occasional advantage.

Dr. KEYES, in the last edition of his work on genito-urinary diseases, states that he has come to depend most upon instillations of nitrate of silver solutions (gr. j to the f. ℥j of water to gr. xx to the f. ℥j of water) in the manner about to be mentioned as advised by GUYON.

PROF. F. GUYON, OF PARIS.

Prof. GUYON (*Form. de la Faculté de Méd. de Paris*), advises in cases of gleet that a flexible bougie with an olivary tip be provided, hollow and perforated at the tip by a minute opening. A syringe much like a Pravaz syringe, a bulb with a conical canula to it, is also to be obtained. Having filled the bulb with the medicant, the canula is applied to the hollow bougie, and the latter is filled with the remedy. It is now to be introduced into the urethra, back beyond the membranous portion, into the prostatic urethra, and here the syringe is again operated, so that ten or twenty drops of the medication, a solution of nitrate of silver preferably, are instilled into this part of the canal. Then the bougie is withdrawn to the anterior urethra, and here four or six drops are instilled in a like manner, and the instrument is left in place a short time, and slowly withdrawn to favor the distribution through the distended canal. He advises a solution of 1:50 strength, rarely of higher proportion.

Many surgeons rely almost entirely in cases of chronic discharge on instrumental dilatation of the canal, claiming that the existence of a stricture, often of large calibre, causes the retention of matter, and thus perpetuates the local irritation and inflammation. This is undoubtedly true in many cases, but the practice should be reserved for cases in which the gleet is of long standing, lest by instrumental interference an active attack be rearoused.

PROF. F. W. OTIS, OF NEW YORK.

Prof. OTIS (*Physician and Surgeon, 1890; Med. News, 1890*), writes as follows upon the treatment of gleet:

"As large a sound as can be used without undue force having been passed, either ULZMANN'S short silver catheter with slit openings, or an ordinary silk catheter *condé* is introduced just beyond the compressor urethræ muscle so that the eye lies in the neck of the bladder, and as much fluid as can be comfortably borne by the patient (usually from eight to ten ounces) is injected into the bladder by means of a large hand syringe. The patient then empties the bladder in the natural manner, the catheter having been withdrawn, thus thoroughly washing the urethra from behind forward. That the catheter is in the correct position is known by the fact that, when the injection is made, the fluid does not flow outward along the sides of the catheter, as it would were it not prevented by the action of the compressor urethræ; nor when the syringe is re-

moved, does the fluid flow out through the catheter, as it would if it were in the bladder—this being prevented by the sphincter internus. The internal sphincter is so weak, however, that it makes but little resistance to the entrance of the fluid into the bladder. The first injections are extremely weak, increasing in strength day by day as the dilatation progresses. On the first day after the passage of the sound (lubricated with glycerine), a solution consisting of zinc sulphate, carbolic acid and alum, each one part, water 2000 parts, is injected. On the second day the strength of this is increased by reducing the water to 1500 parts, and on the fourth day to 500 parts. On the fifth day a change is made to a solution of the permanganate of potassium, 1 to 2000 of water; on the sixth day, 1 to 1500; on the seventh, 1 to 1000, when the solution is changed to nitrate of silver, 1 to 1000, which is gradually increased in strength to 1 to 100. If the discharge still continues after the silver solutions have been used, they should be supplemented every three or four days by the injection of a few drops of a 5 per cent. solution of silver nitrate into the deep urethra by means of the drop syringe. After a time it will be found that the large injections, if they have not cured the discharge, will cease to act beneficially and become irritating; they should then be stopped and the applications with the drop catheter alone relied upon, the dilatation being continued."

The drop catheter here spoken of is essentially the same instrument mentioned above by GUYON.

FLEINER (*Munch. Med. Wochensch.*, 1889), in the treatment of chronic gonorrhœa, uses an ointment having the following composition:

868. R.	Argenti nitratis,	1	
	Ceræ flavæ,	2	
	Butyri cacao,	17.	M.

A polished, nickel-plated sound is warmed and drawn through this, which promptly solidifies upon it, and melts again when inserted into the warm urethra. A few applications of the sound thus coated to the deep urethra usually are productive of decided results.

DR. BREIMA.

Dr. BREIMA recommends (*La Riforma Medica*; *Med. News*, 1890) the following injection for chronic gonorrhœa:

869. R.	Creasote,	℥x	
	Fluid extract of hamamelis,		
	Fluid extract of hydrastis canad.,	āā	℥xv
	Rose water,	f. 3 iv.	M.

This should be slightly diluted with warm water before using.

GONORRHEAL PROSTATITIS.

MR. BERKELEY HILL, F. R. C. S., OF LONDON.

An obstinate prostatic gleet is not an infrequent result of a neglected or ill-treated gonorrhœa. In this treatment Mr. HILL recommends that if there is much pain and nocturnal irritation, a very mild anodyne suppository passed into the rectum at bed-time should be ordered, such as one-third of a grain of extract of belladonna, a quarter of a grain of hydrochlorate of morphine, one grain of camphor and sufficient butter of cocoa should be given. While the discharge is whitish or opaque, two or three drops of copaiba in frequent doses is often useful; and when the prostate has lost tenderness if pressed by the finger, one or two drops of tincture of cantharides, in plain water, four times in twenty-four hours, is also sometimes magical in its effect. A good formula for the copaiba is:

870. R.	Copaibæ,	℥ij	
	Cinnamomi essentia,		
	Mucilaginis acaciæ,	āā	℥xx
	Aquæ,		f. 3j.
			M.

This amount four times daily.

When all the pain and spasmodic twitching of the compressor muscles have passed away, cubebs in moderate doses—say ten grains, four times daily—is sometimes useful to check the secretion completely.

For *local treatment*, he states that when considerable pain is felt if the finger is introduced into the rectum, and the prostate feels large and soft, leeches are useful—three or four applied by means of a leech-tube to the mucous membrane within the anus; or if the introduction of a foreign body causes pain, which is often the case, and the requisite skill be not at hand, twenty leeches applied to the perinæum are very beneficial. When the prostatic tenderness has subsided, cool hip-baths for five minutes morning and evening, beginning at 85° F., and gradually lowering the temperature to 50° F. by adding cold water, are useful. They may be continued several weeks with benefit. In continuous moderate counter-irritation, lauded by some surgeons in chronic prostatitis, he has no faith. He has used it over and over again, but could never satisfy himself that the repeated application of small blisters to the perinæum lessened the prostatitis. If it benefited the patient at all, it did so only by engaging his attention and satisfying him that “something was being done.” Counter-irritation by means of caustic solution of iodine is

useful when applied in the following way: Paint the perinæum, the genito-crural folds and neighboring parts of the thighs, so that the area is as large as half a square foot, and thus raise a considerable amount of irritation, too great to allow the patient to walk about for some days. Such irritation sometimes removes all the symptoms in a few hours, except the gleet, and that is then in a fair way to depart. But this favorable result is by no means constantly obtained; hence he avoids counter-irritation till he has tried other means.

In the "irritable" or "relaxed" prostate, which sometimes comes from this cause, sometimes from masturbation, unsatisfied desire, spermatorrhœa, etc., the treatment is first to allay the patient's fears, which are generally extravagant, inquire into his diet, and warn him to eat his meals slowly. If, as is often the case, an examination of his urine shows that the phosphates are freely deposited, the following formula will be appropriate:

871. R.	Acidi nitrici diluti,			
	Tincturæ nucis vomicæ,	āā	gtt. x	
	Aquæ,		f. ʒj.	M.

This amount thrice daily.

In regard to local treatment, examine the prostate with the finger, and if not specially tender, pass a flexible bullet-bougie along the urethra; and don't be alarmed by the amount of outcry it causes, or even should a drop of blood be found adhering to the end of the instrument when it is withdrawn. Of course the greatest gentleness must be used in passing the instrument. The pain, which is of a burning kind, disappears very quickly, and the patient, even if he have fainted from the nervous shock, in a few moments gets up and acknowledges that he feels no particular inconvenience from the operation. In the next three or four days he experiences great improvement; the amount of discharge is less; there is less aching in the sacrum and thighs after walking; and consequently his spirits are better, and his several nervous disorders trouble him far less; so that on his next visit he will usually allow the bougie to be passed again, and may even beg for it spontaneously. After the first introduction the spasm is commonly much less, and when it has passed a few times the amount of suffering is very bearable. In order to reduce the pain to a minimum, Mr. HILL uses at first flexible black French bougies with tapering ends, till the irritation has considerably lessened, when a steel No. 10 sound, with a short curve, is generally the most effective instrument. So long as any tenderness or spasm

remains, the sound should be passed once a week, if the good effect last so long, twice a week if the dull pain and sense of weight begin to revive after three or four days have elapsed. It now and then happens that the passing of a sound becomes real agony. In such cases he is accustomed to pass the catheter, and throw in from ten to fifteen drops of solution of nitrate of silver (twenty grains to the ounce), first rendering the patient insensible by chloroform, or, better still, by gas and ether, and emptying the bladder, if the patient has not already done so in the natural way, before the injection is thrown in. While he is still unconscious, it is well to inject one-third of a grain of morphia under the skin, to maintain insensibility for the three or four hours that elapse before the pain of the injection subsides.

This injection is also useful in chronic prostatitis, and must be carried out in the same way. For this it may need repetition more than once, or even twice; but repetition is rarely, if ever, needed for simple irritable prostate, as after one injection the slight tenderness remaining is easily controlled by the regular introduction of a bougie about once a fortnight, which the patient may learn to do for himself. When the digestion has been restored or greatly improved and the local irritability has subsided, the recovery may be made complete by sending the patient on a long sea voyage. By such means his body is invigorated, his mind fully occupied, and he is removed from temptation to sexual excitement. In a year or so, by the time he is fitted for sexual intercourse in marriage, he should seek that as the best safeguard against relapse into his old condition.

BOUILLY, of the Medical Faculty of Paris, advises in these cases of chronic prostatitis that water and other diluents be freely drunk, that sexual congress be authorized at long intervals, that local revulsives, as by painting tincture of iodine on the surface, be applied to the perinæum. Warm sitz-baths should be used, but should be of but short duration. Finally he urges the instillation of a solution of nitrate of silver (1:50) into the prostatic urethra.

GONORRHŒAL ORCHITIS.

(*See also Section on Orchitis, p. 552.*)

GERMAN HOSPITAL, PHILADELPHIA.

At this institution, if epididymitis results, the patient is put at rest on his back, the testicles supported on a cushion, and cooling lotions applied, if there are acute inflammatory symptoms. Should

the epididymis become chronically indurated and indisposed to soften, then mercury is applied locally, either in the form of the simple ointment, or of that combined with the belladonna ointment, in the proportion of eight of the former to two of the latter. In place of the mercurial preparation, an ointment containing iodine is sometimes used. The following formula is one of the most common :

- | | | | |
|-----------|-------------------------------|--------|----|
| 872. R. | Unguenti iodinii, | ℥ij | |
| | Extracti belladonnæ, | gr. xx | |
| | Adipis, | ℥ij. | M. |
| Ointment. | Apply externally twice daily. | | |

PROF. BOZY, OF PARIS.

Prof. BOZY, following MARTEL (*Form. de la Fac. de Méd. de Paris*) prescribes in gonorrhœal orchitis the following :

- | | | | |
|--|-------------------------|----------|----|
| 873. R. | Tincture of pulsatilla, | gtt. xxx | |
| | Syrup, | f. ℥ iv. | M. |
| Sig.—Half tablespoonful every two hours. | | | |

At the same time he advises that cloths wet with a solution of muriate of ammonium be kept applied about the scrotum.

The value of pulsatilla in the treatment of this affection has been attested to recently in this country by Dr. D. H. TUCKER, of Texas (*Med. Standard*, 1890), who reports five cases of orchitis which he states were aborted by means of this drug. Dr. TUCKER uses the tincture in doses of two to three drops every two to four hours.

INFLAMMATORY ŒDEMA OF THE PREPUCE.

- | | | | |
|---------|------------------|-----|----|
| 874. R. | Plumbi acetatis, | ℥iv | |
| | Aquæ, | Oj. | M. |

Or,

- | | | | |
|---------|-----------|-------|----|
| 875. R. | Aluminis, | ℥viss | |
| | Aquæ, | Oj. | M. |

The œdematous organ is to be enveloped and lightly compressed by a linen bandage saturated with one of the above solutions.

Dr. E. L. KEYES, of New York, instructs that the patient should be placed in bed if this condition amount to any severity, and the penis kept elevated over the hypogastrium. Evaporating lotions containing a small amount of alcohol or a solution of tannin (gr. x-xx to f.℥j of water) should be used locally, and the preputial

cavity frequently washed out with a weak LABARRAQUE'S solution or a dilute lead water, or carbolic acid (gr. ij to f.ʒj).

GONORRHŒAL OPHTHALMIA AND CONJUNCTIVITIS.

Gonorrhœa affects the eye in two ways, as ophthalmia, and as conjunctivitis. The parts affected in ophthalmia are the iris, conjunctiva, or the capsule of the lens; the condition seems to be part of gonorrhœal rheumatism, but may occur without the presence of the other symptoms of rheumatism.

DR. E. L. KEYES, OF NEW YORK.

The treatment of *gonorrhœal ophthalmia* is mostly expectant. The utmost care should be had to procure absolute rest for the eye. As local applications, emollient eye-washes should be used, and hot applications employed at first, together with instillation of atropine if there be iritis. Hot mustard foot-baths, revulsive cathartics as mercurial purgatives, and a low diet, should be advised. Small blisters to the temples and forehead may prove of service. In mild cases, if the eye be well protected, the patient may go about. In severe cases, the patient should, however, be kept in the house, and blood-letting and repeated purgations resorted to. Where the pains about the eye are severe, they may be allayed by some such application as

876. R.	Chloroformi, Tincturæ opii, Olei olivæ,	āā	q. s.	M.
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Gonorrhœal conjunctivitis is an exceedingly serious condition to meet with, although, fortunately, it is rare. As soon as it is noted, every effort must be made to save the other eye, if this has escaped the infection. This may be done by sealing it shut entirely with collodion and lint, or may be performed so as to permit vision by sealing a watch crystal over the eye with the same substances, or with adhesive plaster.

In dealing with the inflamed eye the slightest pressure is prejudicial, and often it is necessary to prevent the pressure from the lids by slitting the lids apart at the outer canthus. If the patient is seen early, within the first twenty-four or forty-eight hours, before the symptoms have become intense, blood-letting from the temple or mastoid process to the extent of three or four ounces may be permitted in the robust; leeches, or wet cups, or artificial leeches, may

be used for this purpose, and the process may be repeated once or twice if the patient is in condition to stand it. Purgatives, low diet, perfect rest, and a darkened room should be secured. Where the patient is not robust, no blood should be abstracted. Cold applications should be placed to the eye. As soon as pus begins to form, a solution of nitrate of silver (gr. x-xx to the f.℥j of water) should be painted over the conjunctiva; and the iced water cloths kept up. Every few hours this should be repeated. When the pus forms thickly, a very strong solution of the silver or the solid stick should be used, the excess being washed away with a solution of common salt. Free use of cocaine is advisable to lessen the pain of these stronger applications. These applications are intended to prevent the suppurative feature as much as possible, and should be repeated often enough to keep down this feature of the inflammation. The ice-water compresses should be kept on for some hours after each application, and then substituted by applications of cold cream to protect the tissues. The eye is held shut by the œdema of the lids and the spasm of the muscles, and within usually there is collected a considerable amount of pus. Herein is seen the advantage of slitting open the lids, that this can be easily reached and removed. At any rate, every now and again the lids should be pressed apart and a few drops of water gently squeezed from a soft rag upon the eye to cleanse away the pus, and that which can be gotten at readily should be removed gently by means of the rag. A syringe should not be used for this purpose, as the pus might be scattered about by the stream of water and excite new foci of inflammation. A weak solution of silver nitrate is very excellent for the purpose of cleansing in this manner: but the main point is in its frequent and conscientious performance by the one in charge of the case. An opiate may be permitted to procure sleep.

Chemosis is to be treated by extensive and deep scarifications. When the cornea becomes opaque atropine is dreaded, and the anterior chamber should be punctured to relieve the tension as it manifests itself.

When the severe symptoms abate, milder astringent eye-washes are to be used, as of alum (gr. vj-xij to the f.℥j of water), of zinc sulphate (gr. j-ij to f.℥j) or borax (gr. v-x to f.℥j) may be instilled into the eye with a dropper. Where the inflammation drags on for a long time in a subacute condition, and tends to become chronic, blisters behind the ears, on the temples, a seton in the back of the

neck, have been recommended, together with plenty of good air, food, tonics and stimulants.

DR. ROGERS, OF MADISON, INDIANA.

877. R.	Acidi carbolici,	gr. j	
	Atropinæ sulphatis,	gr. ss	
	Zinci sulphatis,	gr. ij	
	Aquæ destillatæ,	f. ʒj.	M.

This solution is to be dropped into the eye every two hours, and applied constantly, with moist compresses externally.

Dr. ROGERS has proved the efficiency of this treatment in numerous cases of gonorrhœal conjunctivitis, with chemosis, great swelling of the lids, profuse purulent discharge, photophobia, etc. A week generally suffices for a cure in mild cases.

GONORRHŒAL RHEUMATISM.

ALFRED BARRING GARROD, M. D., F. R. S.

This author says that when gonorrhœal rheumatism is treated vigorously in the commencement of an attack, the joints may become affected in a slight degree only. If there be much constitutional disturbance and inflammatory action, purgatives may be exhibited and a small quantity of blood may be taken from the arm; while local fomentations may be employed, and a splint of gutta-percha to keep the affected joint perfectly at rest. After venesection, a full dose of opium gives great relief, and if it is administered with ipecacuanha, as in Dover's powder, the secretion of the skin is increased. The sweating which is thus produced is beneficial, but increased action of the skin is best promoted by the *Turkish bath*. Sometimes the pains in the joints cease entirely in the bath.

In an acute attack, abstinence from flesh, as well as from fermented and distilled liquors, is absolutely necessary.

When the inflammation tends to become chronic, *iodide of potassium* may be given with advantage, gr. xxx–xl daily. It is preferable to abstract a small quantity of blood from a vein than to apply leeches to the inflamed joints, as these sometimes produce suppuration in the cellular tissue.

After the first or second attack, or when the patient is debilitated, the treatment should be of a moderately stimulant or tonic character; depletion will aggravate all the symptoms and increase the effusion. Opium may be given freely, and iodide of potassium in small doses. Gutta-percha splints should always be used during the period of effusion, to prevent motion.

As soon as the pain and swelling cease, gentle frictions with shampooing should be employed to restore mobility. Much time will probably be required to effect this object, and it may be necessary, if adhesions have formed, to flex the limbs forcibly after chloroform has been inhaled. In many cases mobility can be entirely restored, even after ankylosis has appeared to be complete.

DR. J. F. M. GEDDINGS, OF SOUTH CAROLINA.

This practitioner states that in the first place the gonorrhœal discharge should be suspended by appropriate injections. The following formula, suggested by NIEMEYER, he has found very efficacious in simple gonorrhœa, and there is no reason why it may not prove equally so in complicated cases :

878. R.	Acid. tannic.,	grs. xxx-lx	
	Vini gallici rub.,	f. $\frac{3}{4}$ ix.	M.
	Ft. inject.		
	To be used three times a day.		

Concerning the use of balsam copaibæ, he is extremely dubious. Highly recommended by LEBERT and others, the remedy seems contra-indicated by the possibility of its inducing, in certain subjects, symptoms simulating those of the disease under consideration.

The local treatment of the affected joints requires absolute rest, leeches, and the cold or warm douche, according to the susceptibilities of the patient. After the acute symptoms are subdued, no remedy exercises a more beneficial influence than *the actual cautery*, applied lightly to many points around the joint, so as only to involve the epidermis and superficial layer of the chorion. Painting with tinct. iodine, blisters, frictions with oil, etc., may be substituted, but with less effect.

When the swelling has somewhat subsided, but the joint still remains stiff and painful, the cold douche, with frictions, gives excellent results. In indolent cases, where there is formation of much new tissue in and around the joint, moderate compression and an immovable apparatus should be used. Should adhesions have formed between the articulating ends of the bones, causing spurious ankylosis, LANGENBECK'S method of forcible extension and flexion in the chloroform narcosis should be practiced. This practice should not, however, be resorted to until the inflammatory symptoms have ceased. In cases where there is evidence of purulent accumulation, with caries of the ends of the bones, the question of amputation must

be considered. PRICHARD reports a case where amputation of the thigh had to be practiced for suppuration of the knee, affected with gonorrhœal rheumatism.

PROF. RICORD, PARIS.

879. R. Tincturæ scillæ,
Spiritus camphoræ,
Vini opii, āā f. 3v. M.

A resolvent liniment, to be applied, in fomentations, to joints affected with gonorrhœal arthritis, when the pains have nearly disappeared.

BERNARD E. BRODHURST, F. R. C. S., MANCHESTER, ENG.

This writer, in the *Medical News* of 1891, gives the following instructions: "When pain is first felt, and swelling appears, the affected joints should be wrapped in lint covered with mercurial ointment, and they should be bandaged as firmly as can easily be borne, and the patient should be brought rapidly under the influence of mercury, preferably by inunction, with which treatment pain and swelling quickly disappear, and the joints resume their normal condition. At this stage passive motion should be instituted to ascertain that the motion of any affected joint is free, for lymph will have been deposited on the synovial membranes, through which adhesions form that prevent motion. These bands soon become firm, and resist any attempt that a patient himself can make to move the joint. These constitute false ankylosis. The mercurial treatment to which I have referred, if resorted to at the outset of the inflammatory stage, never fails. Swelling subsides as the mercury takes effect."

RUBENSTEIN (*Wien. Klin. Wochens.*, 1890,) envelops the affected joints in cloths wet with carbolic acid solution of one per cent. strength, occasionally substituting dressings with blue ointment, or solutions of ordinary salt, or simple cold water. When the active symptoms have left, he applies an elastic bandage, and if necessary aspirates the joint. Internally he gives iodide of potash:

880. R. Potassii iodidi, 3j
Aquæ, f. 3v. M.

Sig.: One or two tablespoonfuls in the morning and four or five tablespoonfuls in the afternoon. Occasionally smaller doses are given.

STRICTURE OF THE URETHRA.

DR. E. L. KEYES, OF NEW YORK.

Dr. KEYES states that in most cases of stricture of the urethra, alkalies, diluents and rest are serviceable, and, if there be any serious complications, indispensable. Uncomplicated strictures are to be treated by dilatation by soft bougies of graded sizes, the instrument being employed in most cases about once a week. Irritable strictures of the deep urethra should be operated upon by external or combined internal and external urethrotomy; strictures of the pendulous urethra are also open to internal urethrotomy. Time, patience and skill, with whale-bone bougies, are requisite in the treatment of deep-seated and tight strictures; and if entirely impassable, external perineal urethrotomy is to be performed.

The value of non-operative measures is particularly met in cases of retention of the urine from stricture of the urethra. A person having a urethral stricture may suddenly, after exposure to cold, or excessive use of alcoholics, or after the use of a bougie, be unable to pass his water, and if relief is not afforded in the course of some hours, will suffer intensely from distended bladder. Usually in time, from this very distended condition of the viscus, a small amount of urine is forced through the stricture and a urinary dribbling is established as if the patient were incontinent. Small catheters should be used, and in event of failure, filiform bougies should be employed to pass the stricture. If these measures fail (or before the employment of instruments) the patient should be placed in a hot bath, the temperature being raised by the addition of hot water from time to time, as it may be borne, remaining in the bath for fifteen or twenty minutes, or a less time if a feeling of faintness and nausea is induced by the hot water. In a robust subject a few leeches may be applied to the perinæum. As a further means of overcoming the inflammatory closure, a bit of ice in the rectum may be of service. If the bladder is not distended so as to be painful, the patient should be placed in bed and a grain of opium given every hour until relief is afforded, this remedy quieting the pain and unrest. Twenty drops of sesquichloride of iron given every fifteen minutes along with the opium for a couple of hours, seem to facilitate the relaxation of the stricture. After the fourth or fifth grain of opium the urine will generally flow, or at least an instrument may be passed and relief afforded. The bladder should not in these cases of distention be emptied at

once, for fear of inducing collapse; only part of the urine should be permitted to escape, and the catheter is then to be plugged for a time, when more may be withdrawn, the entire amount being removed in three or four parts.

Anæsthesia carried to the stage of relaxation is often of great avail as an aid to the passage of a catheter in these cases of retention; and where time permits, the free application of belladonna ointment to the perinæum, together with atropine and opium by the mouth, has been found of undoubted relaxant influence in the experience of the editor.

Where such measures have failed or may not be introduced for want of time, the bladder should be aspirated above the pubis, or opened by external perinæal urethrotomy. Where the stricture has given rise to urinary extravasation and infiltration, free division of the constriction should be made externally.

NOTES ON REMEDIES.

Acacia. Thin mucilage makes an excellent injection, as :

881.	R.	Mucilaginis acaciæ,	f. ℥ iij	
		Carbolic acid,	f. ℥ ij	
		Aquam,	ad f. ℥ xij.	M.

For urethral injection—f. ℥ ss as needed.

Acetum. Cider vinegar, more or less diluted, has been found of good service in chronic gleet.

Acidum Boricum has been used as an antiseptic agent in mild cases with some success, by injection.

Alumen. A saturated solution of burnt alum, used as an injection three times a day, is commended by Dr. A. DE VOS, of Belgium, as the best of all injections in gonorrhœa when the acute symptoms are subsiding.

Antipyrine has been used in injections (F. 845).

Argenti Nitras. The employment of this agent in gonorrhœa has been much discussed. The abortive method by strong injections (gr. xxx-5j, to water f. ℥j), has been revived by eminent authorities. This strength may, however, be safely applied to the vagina in specific vaginitis. It should be painted on the part with a brush through a speculum. In the male it may be used every three hours until the substitutive inflammation has been established. In *gonorrhœal balanitis*, Dr. DARVOSKY recommends drawing back the prepuce in order to thoroughly cleanse the parts and to apply the medicine directly upon the inflamed surface. After all the secretion is washed off, the whole everted surface of the prepuce is penciled over with a solution of nitrate of silver

(thirty grains to the ounce) ; a small piece of linen saturated with the same lotion is then laid over the glans penis, and the prepuce drawn over it. During the first days the gray eschar produced by this cauterization is very quickly thrown off, wherefore the application of the nitrate of silver should be repeated several times daily. Afterward, when the œdema of the prepuce has subsided and the discharge is greatly diminished, the eschar adheres for one day or longer, and the remedy must not be re-applied till the eschar is thrown off.

Belladonna is of service in *chordee* and the genesic erethism which precedes the disease. Dr. VAN DEN CORPUT prescribes :

882. R.	Extracti belladonnæ,	gr. ij	
	Camphoræ,		
	Lupulinæ,	āā gr. xij.	M.

For eight pills. From two to four at a night.

Dr. BUMSTEAD uses the ointment in epididymitis.

Bismuthi Subnitras is a popular ingredient in injections. It is best suspended in thin mucilage. Its action is mechanical, in keeping the inflamed surfaces asunder. The solution must be prepared fresh every day, as it sours and becomes irritating.

Chloral, *hydrate of*, has been used as an injection, gr. v-x to aquæ f. ʒj.

Cadmii Sulphas. This has been used in acute gonorrhœa, gr. j to aquæ f. ʒj-ijj.

Camphora. Professor RICORD's favorite remedy in *chordee* and *painful erections* :

883. R.	Camphoræ pulveris,		
	Lactucarii,	āā gr. ij.	M.

This amount in a pill every hour from supper until bed-time.

Dr. DURKEE gives f. ʒj of the spiritus camphoræ in sweetened milk on going to bed. If the patient wakes with the *chordee*, he is to repeat the dose.

Carbolicum Acidum has been found efficient in recent cases. Mr. GEORGE ASHMEAD, L. R. C. S., Edinburgh, commends (*The Lancet*, Dec., 1871,) the following :

884. R.	Acidi tannici,	ʒj	
	Acidi carbolici,	ʒij	
	Glycerini,	f. ʒj	
	Aquæ,	f. ʒ vij.	M.

Half an ounce of this, as an injection, thrice daily.

Colchicum has been recommended by Sir BENJAMIN BRODIE in the gonorrhœa of gouty subjects. He also gave ℥xxx of the wine at night for *chordee*.

Copaiba is regarded by many as a specific in gonorrhœa. It is contra-indi-

cated by hyperæmia, and should not be exhibited until the acute symptoms have been conquered, and when the discharge is whitish and thick. Mr. BERKELEY HILL uses the following :

885. R. Copaibæ, ℥j
 Mucilaginis acaciæ, f. ʒ ij
 Aquæ cinnamomi, f. ʒ viij. M.
 Tablespoonful thrice daily.

The following is given by Dr. BUMSTEAD :

886. R. Copaibæ, f. ʒ j
 Liquor. potass., f. ʒ ij
 Extr. glycyrrh., ʒ ss
 Spts. æther. nitr., f. ʒ j
 Syrup. acaciæ, f. ʒ vj
 Ol. gaulther., gtt. xvj. M.

Mix the copaiba and the liquor potassæ and the extract of liquorice and spirits of nitre first separately, and then add the other ingredients. Dose, a tablespoonful after each meal. The addition of pepsin to such mixtures of copaiba renders them less likely to disarrange the gastric function.

This drug has been often used as an injection. LANGLEBERT employs an *aqua copaibæ*. Dr. DICK, of London, recommends :

887. R. Olei copaibæ, f. ʒ j
 Pulveris acaciæ, ʒ ij
 Aquæ, f. ʒ vj. M.

In subacute gonorrhœa and in gleet, this injection is to be used twice a day for a few days ; afterward, more frequently.

The formula of VELPEAU is as follows :

888. R. Copaibæ, f. ʒ ij
 Tincturæ opii, f. ʒ ss
 Mucilaginis acaciæ, f. ʒ iss. M.

For an injection, to be repeated twice or thrice a day.

It is asserted that successful results have been obtained in this manner in cases in which the balsam could not be tolerated by the stomach. *Creolin* is favorably commented upon by LUTAUD as a material for employment in injections. (F. 837.)

Creosote has been administered in doses of gtt. j-ijj, thrice daily. (*Half-Yearly Compendium*, January, 1874.) (See p. 589.)

Cubeba is often indispensable in gonorrhœa. It may be given in any and all stages of the disease with benefit. A pleasant form is the oleo-resin, gtt. x-xxx on a lump of sugar, three or four times a day. Some prefer the pill form, in which it may often be advantageously combined with copaiba and sandal-wood oil.

889. R. Cubebæ olei,
 Copaibæ olei,
 Santali olei, āā f. ʒ j
 Magnesiæ, ʒ ij. M.

For sixty pills. Six to eight a day.

Cupri Acetas is preferred by some. Dr. REECE, of Paris, uses :

890. R.	Plumbi acetatis,		
	Cupri acetatis,	āā	gr. ix
	Acidi acetici,		gtt. v
	Aquæ,		f. ℥ viij.
			M.

Use as an urethral injection, thrice daily.

Cupri Sulphas is a valuable remedy. In a very weak solution (gr. j to aquæ f. ℥j) it may be used as an abortive. After the acute stage has passed, the following is a useful formula :

891. R.	Cupri sulphatis,		gr. iv
	Morphinæ sulphatis,		gr. iv
	Liquoris plumbi subacetatis,		f. ℥j
	Aquæ rosæ,		f. ℥ iv.
			M.

About half an ounce thrice daily, as an injection.

Erigeron Canadensis. The oil of the Canada fleabane, in doses of gtt. v-xx every two or three hours, has been found by Dr. G. A. STARKE, of Milwaukee, (*Canada Medical and Surgical Journal*, May, 1876,) to cure gonorrhœa in from two to six days. A good formula is :

892. R.	Ol. erigeron Canadensis,		f. ℥ iij
	Ol. lig. santal.,		f. ℥ iss
	Spt. vini rect.,		f. ℥ j
	Syr. simplicis,		ad f. ℥ iij.
			M.

Flavor with the essence of wintergreen. Shake the bottle before using. Teaspoonful every two, three or four hours, as deemed necessary.

Ferri Chloridi Tinctura has been found valuable as an internal remedy in the gleet of anæmic subjects.

Ferri Sulphatis Liquor, in weak solution, gtt. v-x to aquæ f. ℥j, has been used with advantage in some obstinate cases of gleet.

Gurjun Balsam has been used recently in Paris. It is said to act more rapidly than copaiba. The following is VIDAL's formula, as used at the Hospital Saint-Louis: Gurjun balsam, 4 grammes (1 drachm); gum, 4 grammes (1 drachm); infusion of star anise, 40 grammes (10 drachms). To be divided into two doses, and taken immediately before meals.

Hydrargyri Bichloridum is used in injections in mild cases, and in the early stages as an antiseptic.

Hydrargyri Salicylas has been favorably regarded as used in injections. (F. 849.)

Hydrargyri Unguentum is used as a local application in the joints affected by gonorrhœal rheumatism (p. 598).

Hydrastis. The yellow root has been highly lauded in gonorrhœa. Pro-

fessor R. BARTHOLOW says he has seen no injection so frequently successful as :

893. R. Hydrastinæ, 3i
Mucilaginis acaciæ, f. ʒ iv. M.
A half-ounce as an injection.

Dr. J. N. BREDIN (*Medical Times*, Sept., 1874,) commends :

894. R. Hydrastin, 3i
Morphinæ liquoris (Magendie), f. ʒ ij
Mucilaginis acaciæ, f. ʒ iv. M.
Employ three times a day.

Ichthyol has been used in the form of sulph-ichthyolate of ammonium as an injection, by KÖSTER.

Iodoform. According to Dr. ALVARES, Italy, iodoform ointment relieves the pain of blennorrhagic orchitis better than any other application. This result is obtained at the end of one or two hours.

Kava Kava, the root of the *Piper methysticum*, in form of infusion, has long been used in the islands of the Pacific Ocean as an agreeable popular remedy for gonorrhœa. It has lately been introduced into this country and France. A drachm and a half is macerated for five minutes in a pint of water, with frequent agitation. The infusion is filtered and given in two doses daily, before and after meals, until a cure is effected. Twenty minutes after the dose the patient experiences a pressing desire to urinate. The urine passed is large in quantity and of a clear, watery appearance. The smarting which is experienced at first in the discharge is removed, and a feeling of comfort supervenes. A cure is effected in from ten to twelve days. In addition to this the kava acts as a bitter tonic, is agreeable to take, promotes the appetite, does not incommode the digestive organs, and, finally, occasions neither diarrhœa nor costiveness.

Kaolin, or white clay, suspended in water, was introduced as an injection by Dr. F. W. GODON, of New York. He mixes the earth with water to a thin paste, and throws from one to three drachms into the urethra once or twice a day. The disease yields in five or six days.

Nitricum Acidum makes an excellent injection in gleet. The strength of the solution should be gtt. ij to water f. ʒj, of which f. ʒj-ij should be thrown up frequently.

Opium and its alkaloids render important service in the acute inflammatory stage of gonorrhœa. The following is a good formula :

895. R. Extracti opii aquosi, gr. vij
Liquoris plumbi subacetatis, f. ʒ j
Glycerini, f. ʒ ij
Aquæ destillatæ, ad f. ʒ iv. M.

Use as an injection, two or three times a day, to lessen the painful smarting from micturition.

Plumbi Acetas forms a cooling and astringent injection. The following combination has been found excellent, in spite of the chemical change which takes place in it :

896. R. Liquoris plumbi subacetatis diluti, f. $\frac{3}{4}$ iv
Zinci sulphatis, gr. viij. M.
As an injection in inflammatory gonorrhœa.

Potassii Bromidum is a valuable injection in the acute stage :

897. R. Potassii bromidi, $\frac{3}{4}$ iss
Glycerini, f. $\frac{3}{4}$ ijss
Aquæ, f. $\frac{3}{4}$ iv. M.
Use luke warm, twice daily, in acute gonorrhœa.

It has also been given internally by Dr. J. W. BLIGH, of Canada :

898. R. Potassii bicarbonatis, $\frac{3}{4}$ j
Potassii bromidi, $\frac{3}{4}$ ij
Tincturæ hyoscyami, f. $\frac{3}{4}$ ss
Aquæ camphoræ, f. $\frac{3}{4}$ vss. M.
One ounce thrice daily, on an empty stomach.

Dr. B. adds that when there is any disposition to painful erections of chordee, a draft containing about half a drachm of the bromide in an ounce of camphor mixture, administered at bed-time, will be found to allay this tendency almost to a certainty. In this combination its effect seems magical, and has only to be tried to be recognized as a boon of inestimable value.

Potassii Chloras is especially useful in specific vaginitis. A useful combination of the potash salts is :

899. R. Potassii chloratis, $\frac{3}{4}$ iv
Potassii permanganatis, gr. x
Aquæ, Oj. M.
Inject a teaspoonful night and morning, in vaginitis.

Potassii Iodidum is of much value in the treatment of gonorrhœal rheumatism (p. 596).

Potassii Permanganas is extolled by Dr. WILLIAM A. HAMMOND. He believes it has the power of destroying the contagious property of the secretion from the mucous membrane :

900. R. Potassii permanganatis, gr. $\frac{1}{4}$ -ij
Aquæ, f. $\frac{3}{4}$ j. M.

The weaker solutions should be used first, and gradually increased. Eight or ten injections should be made in twenty-four hours.

Pulsatilla, gtt. j of the mother tincture every hour, is said by Dr. PIFFARD to relieve the pain of gonorrhœal epididymitis. (*Med. Record*, January, 1878.) (P. 593.)

Pyridine has been used in injections. (F. 851.)

Quininæ Sulphas has been used with great advantage in the acute stage, where there is much scalding and a profuse discharge :

901. R.	Quininæ sulphatis,	gr. xvj	
	Acidi sulphurici diluti,	f. 3j	
	Aquæ rosæ,	f. 3 viij.	M.

Use half an ounce twice daily, as an injection.

Dr. HABERKORN, of Berlin, recommends the following in teaspoonful injections, thrown into the urethra two or three times daily :

902. R.	Quininæ sulphatis,	gr. vj	
	Glycerini,	f. 3 ij	
	Aquæ,	f. 3 vj	
	Acidi sulphurici diluti,	gtt. v.	M.

Resorcin has been employed in injections (F. 847).

Salol is highly commended in doses of gr. x-xx in the treatment of gonorrhœa of any stage, by Prof. J. WILLIAM WHITE. (P. 584.)

Santalum. Sandal-wood oil has of late been prominently urged as a cure for gonorrhœa. It is given in capsules, or in the following prescription, which is that of Dr. THOMAS B. HENDERSON, who introduced this product to notice :

903. R.	Olei santali,	gtt. xx-l	
	Alcoholis,	f. 3j	
	Olei cinnamomi,	gtt. ij-v.	M.

This amount three times a day, in water.

Dr. FRANK F. MAURY gives gtt. xv, thrice daily, on sugar. This remedy sometimes causes vertigo, of which the patient should be notified.

BERKELEY HILL recommends the following formula :

904. R.	Olei santali,	f. 3 ss	
	Liquoris potassæ,	f. 3j	
	Aquæ menthæ piperitæ,	f. 3 iv.	M.

A dessertspoonful thrice daily.

Tannicum Acidum, dusted on the part, is the best application in *balanitis*, *blennorrhœa of the glans*, and *herpes præputialis*. It may also be dissolved in glycerine, and applied with a brush. As an injection in sub-acute gonorrhœa, RICORD prescribes :

905. R.	Acidi tannici,	3 ss	
	Vini rubri,	f. 3 viij.	M.

A favorite combination with MR. WILLIAM ACTON, of London, was ;

906. R. Acidi tannici,
Zinci sulphatis,
Aquaë,
- āā gr. ij
f. 3 ij.
- M.

This amount to be used repeatedly during the day as an abortive injection.

Terebinthinae Oleum, in small doses internally, frequently hastens the cure of the discharge when it is accompanied with an atonic condition of the parts. Ten to fifteen drops in globules may be prescribed.

Zinci Biboras has been recently used with success in injections, gr. ij to aquæ f. ̄j.

Zinci Chloridum, gr. j to water f. ʒj, is used in gleet.

Zinci Sulphas, a popular astringent ingredient, gr. j-lij to aquæ rosæ f. 3j, for injections.

Zinci Sulpho-carbolas enters into a number of formulæ as an antiseptic agent, to be used in injections. (F. 824).

EXTERNAL MEASURES.

Catheterism, by medicated bougies, is practiced by many surgeons in obstinate gleet. It is usually painful, and should be adopted cautiously. The following ointments may be used to cover bougies of wax or rubber :

- | | | | | |
|------|----|---------------------------------------|--------------------------------------|----|
| 907. | R. | Argenti nitratis,
Adipis, | gr. xv-xxx
$\frac{3}{3}$ j. | M. |
| 908. | R. | Acidi tannici,
Adipis, | $\frac{3}{3}$ j
$\frac{3}{3}$ j. | M. |
| 909. | R. | Hydrargyri chloridi mitis,
Adipis, | $\frac{3}{3}$ ss
$\frac{3}{3}$ j. | M. |
| 910. | R. | Potassii iodidi,
Adipis, | $\frac{3}{3}$ j
$\frac{3}{3}$ j. | M. |
| 911. | R. | Extracti belladonnæ,
Adipis, | ℥iv
$\frac{3}{3}$ j. | M. |

Dr. S. D. GROSS thinks that in obstinate cases of gleet there is nothing in the world so good as the introduction of nickel-plated conical bougies and the simple overstretching of the inflamed parts.

Counter-irritation has frequently been employed in chronic urethritis. *Blisters* may be applied high up on the inner surface of the thigh. Dr. DURKEE extols them highly when there is no stricture present. In obstinate cases, the perineal integument may be strongly irritated with compound tincture of iodine with advantage.

SYPHILIS.

The editor does not desire to have it understood from the arrangement of the discussion and the headings "primary" and "constitutional" that he is committed to the view that syphilis is essentially local at the period of the primary sclerosis; nevertheless he is willing to be considered as among those who do believe that there exists a period when the disease is local and at times amenable to local treatment. That stage begins with infection, but just how far it extends in the course of the affection is unknown. The convenience of dealing with the subject, however, has been the sole reason for the division of the chapter and for the arrangement of the matter in the following manner.

The division of the section upon the treatment of the chancroid from syphilis at this date probably needs no apology.

PRIMARY SYPHILIS, THE HARD CHANCRE.

Most sores need only cleanliness to allay irritation and induce them to granulate. The sore should be washed three or four times a day while the discharge is abundant, and covered with pieces of lint dipped in cold water, over which oil-silk should be wrapped, if the sore is situated in an outward part, like the dorsum penis or groin. If the patient is a man, he should be directed to support the penis in a suspensory bandage or handkerchief against the abdomen, never to let it hang down, and to be particular that the dress is loose enough not to chafe the parts in walking. If the sore is underneath the foreskin, the lint should be so interposed that the skin does not touch it, both to prevent the sore being chafed and to avoid the formation of fresh ulcers.

As chancres may excite a bubo at any period of their existence, destruction of their surface with caustic may prevent this consequence whenever it is employed. Still, this advantage is not sufficient in practice to require the invariable use of caustics, as the chance of a particular sore not being accompanied by a bubo is two to one, even when left to run its course. Besides this, it is often exceedingly difficult to destroy several sores thoroughly by one application of caustic; hence the patient, after having undergone all the suffering and inconvenience of cauterization, may be disappointed on finding, in a few days, his sore assume its original character.

Among the most effectual caustics is one RICORD prefers. He

makes a paste of powdered charcoal and strong oil of vitriol, which he lays on and rubs into the chancre. In a few minutes the surface is destroyed, and forms an eschar, or crust, which falls off in a week, leaving the sore a simple granulating surface. It is a very effective remedy, being not liable to overflow the sides of the ulcer and attack the healthy skin, as is the case with liquid caustics. But it is not always at hand, hence less convenient than another—the *strongest nitric acid*.

The best way to use this is to daub it with a glass brush over the floor and edges of the ulcer, and allow it to soak well into the surface of the sore for a few minutes, before the excess of acid is neutralized with a little carbonate of soda dissolved in water. The skin surrounding the ulcer should be protected by grease, but the edges may be left clear for the action of the caustic. The chloride of zinc and caustic potash are slower in action, and must be left longer in contact with the sore, or they will not penetrate deeply enough to destroy it altogether. The actual cautery, by hot iron or galvanic wire, is at times very useful when a large amount of tissue has to be destroyed; otherwise it is not preferable to chemical caustics, while it alarms the patient much more than the latter. When the caustic has done its work and the excess is washed away with cold water, the sore should be wrapped in wet lint, and the pain, which often lasts several hours, can be assuaged by the constant application of ice-cold water. The eschar usually separates in four or five days, and leaves a clean granulating surface.

A favorite mixture of our author, in the late form of the disease, is the freshly-formed red oxide of mercury, which he makes according to the following formula:

912. R.	Hydrargyri chloridi corrosivi,	gr. iij	
	Potassii iodidi,	℥v	
	Ammonii carbonatis,	3j	
	Tincturæ cinchonæ compositæ,		
	• Aquæ,	aa	f. 3 iv. M.

A teaspoonful thrice daily, half an hour before meals.

SILAS DURKEE, M. D., ETC., BOSTON.

If, as the result of contagion, or of a suspicious connection, the virile organ has upon it a papule, pustule, abrasion or sore, which *may* be the forerunner of constitutional syphilis, the best thing a surgeon can do, locally, is to make a caustic application to the spot, if this can be done seasonably, say within ten days from the appear-

ance of the abnormal condition. The design of this operation is two-fold: to destroy morbid structure, and to create a healthy, recuperative action in the part. Our author employs for this purpose *potassa fusa*, the *acid nitrate of mercury*, or *concentrated nitric acid*. He never uses nitrate of silver or Vienna paste.

In cases of abrasion, he generally applies *nitric acid* by means of a small bit of lint secured to a silver probe, or, if the surface be very small, by means of the end of a glass rod. The sore is to be freely covered with the acid, warm water being at hand to wash off any excess immediately. The *acid nitrate of mercury*, when used, is applied in the same manner. The slough will be detached in three or five days, and a healthy granulating surface appear. If a solitary vesicle, pimple or pustule is to be destroyed, he sometimes selects *potassa fusa*, which penetrates deeper than either of the liquids mentioned. The end of the stick is reduced to a point and brought in contact with the apex of the morbid growth, or, what is better, break the dome of the pimple with a probe, and empty it of its contents before applying the potassa. To ascertain precisely the work done by the alkali, remove the *debris* or portion destroyed by means of the point of the probe. As the operation is painless, no haste is required, but caution and exactness are both necessary. It is difficult to preserve the solid stick of potassa in a dry state, therefore it had better be applied by placing it on the end of a pointed glass rod or pen. A drop of vinegar will neutralize any superabundance of caustic. The extent of the surface destroyed by this corrosive substance is about twice as great as it appears to be at the time of its application; the same is also true in regard to the depth to which it penetrates.

As the risk of increasing the inflammatory tendency is small, a moderate degree of inflammation co-existing with the pustule or sore need not prevent cauterization.

Cold-water dressing, or a soft cracker poultice, may follow the use of the caustic for two or three days. The first is to be preferred. The patient should rest and diet. When the eschar has separated, dress with:

913. R. Ferri et potassii tartratis,
Aque,

℥ij
f. ℥ viij. M.

To be applied on lint. *Nitric acid* (gtt. ij to aqna f. ℥ j) makes a clean and suitable dressing also.

If the purulent discharge be abundant, order:

914. R. Acidi tannici, gr. xv
 Vini aromatici, f. ʒ iij. M.
 (For Vinum Aromaticum, see F. 867.)

If the sore becomes painful, lay over it a piece of lint soaked in :

915. R. Extracti opii, ʒij
 Aquæ, f. ʒ iv. M.

In occasional instances, after the application of the caustic and the after-dressing mentioned, the sore assumes a spongy or fungoid aspect. Then apply :

916. R. Acidi tannici, ʒj
 Tincturæ lavandulæ, f. ʒ ss
 Vini rubri, f. ʒ iv. M.

Dr. G. E. WEISFLOG has advocated (*Virchow's Archiv.*, Bd. 66,) an abortive treatment of chancre by subcutaneous injections of *nitrate of mercury*.

CONSTITUTIONAL TREATMENT OF CHANCRE.

Our author is partial to the use of corrosive sublimate internally, in the treatment of indurated chancre. He advises its use in pill form :

917. R. Hydrargyri chloridi corrosivi, āā gr. xvj
 Ammonii muriatis, f. ʒ iss. M.
 Aquæ destillatæ,

Make a solution, and make up with bread crumbs into one hundred and twenty-eight pills.

This formula gives one-eighth of a grain of corrosive sublimate to each pill. One to be taken morning and night, immediately after meals. In five or six days one may be taken thrice daily. If pills cannot be taken, order :

918. R. Hydrargyri chloridi corrosivi, āā gr. vj
 Ammonii muriatis, f. ʒ ij
 Tincturæ cinchonæ compositæ, f. ʒ iv. M.
 Aquæ,

A teaspoonful morning and evening for one week; afterward thrice daily, directly after eating. When this medicine has been taken for twelve or fifteen days, it is good practice to omit it for four or five days, and then resume it.

PROF. JULLIEN.

This eminent French practitioner has within the past ten years (*L'Union Méd.*, 1891) excised eighteen chancres, and in four of these cases the further manifestations of the disease failed to appear. Three of the cases were lost sight of shortly after the excision was

done, the number being thus reduced to fifteen. Six of the remaining eleven are said to have been benefitted by the excision to the extent that the further symptoms of the disease were very slight; although this may not have been due to the influence of the operation, of necessity. In the other five the disease pursued its usual course. The author does not believe that excision of the chancre should be regarded as a useless operation invariably, and thinks that if practiced early and when the ganglia are free from involvement, there is some chance in a limited number of cases to escape further results of the infection. This view necessarily presupposes that syphilis is as yet local when the chancre develops, a point which is the subject of considerable debate among syphilographers, and which is generally not held to be exact. In the removal of the chancre, the writer urges as much care as in the excision of any other lesion. He raises the chancre with a tenaculum and cuts beneath it with a bistoury, in preference to a scissors, and is careful to feel the borders of the wound to make sure that all the zone of induration has been cut away. He closes the wound, suturing the edges together, using all antiseptic precautionary measures. Cocaine is sufficient for anæsthetic purposes, applied superficially, or, better, by interstitial injections.

WICKHAM, (*La Méd. Mod.*, 1891) commenting upon the article just mentioned, expresses himself as strongly opposed to the measure theoretically, as well as in its practice. He believes that syphilis is a general disease from the moment of infection, and quotes a number of prominent syphilographers as opposed to the views of JULLIEN, among them VIDAL, DIDAY, ROLLET and BROCCO. So, too, RICORD, who was formerly a strong advocate of the abortive treatment of syphilis by cauterization with his sulphuric acid paste (p. 608), is said by this writer to have concluded that both cauterization and excision are entirely useless in preventing general infection.

The question of the propriety of excision of the hard chancre is, however, not to be considered as by any means settled. Theoretically, regarding syphilis in the same light as we are accustomed to look upon its congener, tuberculosis, there should be no reason for not accepting the probability of a primary localized stage. Whether this localized period extends any definite length of time beyond the formation of the primary sclerosis or chancre, or whether by the appearance of this manifestation the disease has already started to generalize, is a question the answer to which can only be given after

further study. But granted the knowledge of syphilitic coitus it can do little real harm, and may possibly do good to remove the entire early lesion as soon as it may be recognized. Such a course is acknowledged by the eminent American syphilographer, WHITE, of Philadelphia (*Med. News*, 1888,); and LELOIR, too, who was formerly opposed to the method, has, in a later paper, (*Four. de Med. de Paris*, 1890,) reported a successful result, and is more favorably inclined toward further trial of the measure. Moreover, at the Tenth International Congress, held at Berlin, it was the general view, although there were dissenters, that it is possible that occasional good may be accomplished by excision of the initial sclerosis. Prof. Köbner, of Berlin (*Berlin. Klin. Wochens.*, 1890,) has in a few cases succeeded in preventing further symptoms of the disease by excision of the chancre. He advises excision combined with electro-cauterization as of more value than excision alone, being more thorough in the removal of the indurated area. He regards the practice as of avail only in the earliest stages of the chancre.

FREEMAN J. BUMSTEAD, M. D., NEW YORK.

919. R.	Hydrargyri chloridi mitis, Tincturæ opii, Cerati simplicis,	gr. xxxvj f. 3j 3j.	M.
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For application to chancre when an unctuous dressing is required. It is much used in French hospitals. Unguents are less desirable than lotions, and should only be employed when the evaporation of a water-dressing cannot be prevented even with the assistance of oiled silk and glycerine, as may happen from the position of the sore, and during a journey, etc.

In most cases the lotion may consist of simple water or glycerine.

When medicated, such ingredients should, as a general rule, be added as will not leave a deposit, or change the aspect of the sore, and thus render its condition obscure. The following may be used:

920. R.	Acidi nitrici diluti, Aquæ,	f. 3j f. 3 viij.	M.
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The strength may be varied with the sensibility of the part. When the sore is situated upon the external integument, the dressing should be covered with oiled silk.

Chancres located beneath the prepuce may be dressed with dry lint, which will be sufficiently moistened by the natural secretion of

the part. Indurated chancres are not liable to give rise to successive sores in the neighborhood, and hence astringents and disinfectants are rarely required. When the chancre assumes an excavated form, as is commonly seen in the furrow at the base of the glans, scraped lint is preferable to dry linen, since it is a better absorbent.

The frequency with which local applications are to be changed must be determined by the amount of secretion. A second dressing should be substituted before the first is soaked with the discharge. The dressing of the most uncomplicated chancres need be renewed only two or three times a day; but phagedenic ulcers require a much greater frequency.

921. R. Ferri et potassii tartratis, ℥ ss
Syrupi,
Aquæ, āā f. ℥ iij. M.

From two teaspoonfuls to a tablespoonful three times a day, within an hour after meals, in phagedenic chancres, and a lotion containing the same salt to be applied to the ulcer.

RICORD calls this preparation the "born enemy" of phagedena.

PROF. S. D. GROSS, PHILADELPHIA.

922. R. Unguenti hydrargyri nitratis, ℥ j
Cerati simplicis, ℥vj-℥j. M.

In the treatment of chancre no remedy is so efficacious as this. The objection made to greasy applications can only be considered as having any force when there is want of cleanliness. The dressings should be changed every five or six hours, and care should be taken that the ointment shall always be fresh. When the parts begin to granulate, apply:

923. R. Cerati zinci carbonatis, ℥ j
Adipis, ℥vj. M.

Or merely a bit of dry lint carefully interposed between the contiguous surfaces often promotes cicatrization with remarkable rapidity.

924. R. Hydrargyri chloridi corrosivi, gr. j
Potassii iodidi, ℥ ij
Syrupi sarsaparillæ compositæ, f. ℥ iij. M.

Dessertspoonful thrice daily shortly after meals, in tertiary syphilis.

DR. FRANK F. MAURY, PHILADELPHIA.

This surgeon prefers, as a cauterant to the primary sores, either the fuming nitric acid or the acid nitrate of mercury. His abortive

treatment of bubo is to paint it with six coats of tincture of iodine morning and evening, and in the intervals a half-brick, heated as hot as it can be borne, is wrapped in flannel and placed over the swelling. This leads to resolution of the tumor.

For constitutional treatment he has found much advantage from Gilbert's syrup, as follows :

925. R.	Hydrargyri iodidi rubri,	gr. ij	
	Potassii iodidi,	ʒj-ij	
	Aquæ,	f. ʒj.	
	Dissolve, filter and add :		
	Syrupi simplicis,	f. ʒ vij.	M.
	A tablespoonful three times a day.		

CONSTITUTIONAL SYPHILIS.

GENERAL TREATMENT OF SYPHILIS.

E. L. KEYES, M. D., NEW YORK.*

This writer advocates the use of mercury in small, *tonic* doses. He does not think it worth while to commence the treatment until positive signs of constitutional poisoning are manifest, such as induration of the post-cervical glands and the early cutaneous eruptions.

Any preparation of mercury may be used. The protiodide is perhaps the most convenient.

926. R.	Hydrargyri protiodidi,	ʒj	
	Tragacanthæ,	q. s.	M.
	Make one hundred and twenty small pills.		

Or the following very bland or unirritating form :

927. R.	Massæ pil. hydrarg.,	gr. l.	
	Make one hundred pills.		

Or the following, where the iron is applicable to anæmic conditions :

928. R.	Hydrarg. bichloridi,	gr. j	
	Ferri redacti,	gr. l	
	Gum. tragacanthæ,		
	Glycerini,	āā	q. s.
	Make fifty pills.		

Or the following fluid form :

* *The Tonic Treatment of Syphilis.* New York. *Venereal Diseases*, 1880.

929. R. Hydrargyri bichloridi,
Tinct. ferri chloridi,
Aquam,
A teaspoonful.

gr. i
f. ʒ iij
ad f. ʒ vj. M.

Having decided which preparation to employ, the patient must be prepared for his mercurial course. His teeth must be repaired by a competent dentist, he must stop tobacco absolutely, and live a regular life. Thus prepared, let him commence with the dose given above, as follows :

One after each meal, thrice daily, for three days.

On the fourth day, double his mid-day dose ; on the seventh day, double one of the other doses ; on the tenth day, double the remaining dose ; on the thirteenth day, triple the mid-day dose, and continue the increase in this manner until there is very positive evidence of irritation in the intestine, such as pains and diarrhœa, or the gums are touched. This is the patient's "full dose," which should be continued by the aid of opiates until the syphilitic symptoms disappear. As soon as this is accomplished, the dose should be cut down one-half, which will act as a tonic, and is called by Dr. K. the "tonic dose." This is to be continued unceasingly, day after day, month after month, waiting for new symptoms. Should they arise, the patient must at once be put upon the "full dose" until they disappear.

Should the syphilitic symptoms be slow to yield to this method, their disappearance may be hastened by a mercurial vapor bath or by mercurial inunction.

This is the essence of the general treatment, though each case must of course be considered in its special features. The general treatment should last at least during two years, before which period the case cannot be supposed to be well.

Iodine, in its various preparations, ranks next to mercury. When the lesion is purely gummy, and as a general rule in all visceral syphilis, the iodides must be depended upon. They should invariably be administered immediately after eating and freely diluted with water. The three forms which Dr. K. prefers are the iodide of potassium, the iodide of sodium, and the compound tincture of iodine. The iodide of potassium is the most efficient, but also the most irritating. The compound tincture may be used in starch water (iodide of starch). It does not disagree with even very sensitive stomachs, which cannot bear iodine in other forms. The dose is \mathfrak{m} xxx largely diluted.

In combining mercury and iodine the following is a palatable and efficient combination, in which the active ingredients may be varied to suit the case :

- | | | | |
|---------|---|---|----|
| 930. R. | Hydrargyri biniodidi,
Potassii iodidi,
Syrupi aurantii corticis,
Tincturæ aurantii corticis,
Aquam, | gr. ss
3 ij
f. 3 j
f. 3 j
ad f. 3 vj. | M. |
|---------|---|---|----|
- Teaspoonful in water after eating.

When it is desired to give one of the iodides at a fixed dose, it is well to administer it in solution with some bitter tonic, as the compound tincture of cinchona.

The *iodism* which supervenes on the use of the iodine preparations may be largely kept at bay by frequent warm baths and by causing the kidneys to eliminate freely. With these precautions, an occasional anodyne and the use of large quantities of diluents, the drug being taken just after a meal, large quantities may be tolerated. Dr. K. has given an ounce a day with advantage. In ordinary, gr. iiij-v is enough to begin on.

DR. M'CALL ANDERSON, ENGLAND.

This author is convinced that mercury is indispensable in constitutional syphilis, and believes that the patient should be brought fairly under the influence of the drug, although in no case should salivation be produced. His favorite formula for its exhibition is :

- | | | | |
|---------|---|-------------------------------------|----|
| 931. R. | Potassii iodidi,
Hydrargyri chloridi corrosivi,
Potassii chloratis,
Infusi quassiaæ, | 3 j
gr. ij
3 ss
f. 3 viij. | M. |
|---------|---|-------------------------------------|----|
- One or two teaspoonfuls after each meal.

WILLIAM AITKEN, M. D., EDINBURGH.

- | | | | |
|---------|--|--|----|
| 932. R. | Hydrargyri chloridi corrosivi,
Potassii iodidi,
Liquoris potassii arsenitis,
Alcoholis,
Extracti sarsaparillæ fluidi,
Aquæ cinnamomi, | gr. j
gr. xxx
℥ xxxvj
f. 3 j
f. 3 iiij
q. s. ad f. 3 xij. | M. |
|---------|--|--|----|

Two tablespoonfuls three times a day, after meals, in the treatment of some of the more intractable forms of syphilitic squamæ.

JOHN K. BARTON, M. D. (DUBLIN), F. R. C. S. I., ETC.

Our author recommends mercury as generally necessary in the first and second stages of the disease, though, with RICORD, he be-

lieves its action is limited to causing the disappearance of the symptoms present when it is administered, and that it cannot be considered capable of neutralizing the poison. He lays great stress upon its gradual introduction into the system, and, in common with COLLES, BRODIE and SIGMUND, prefers that this should be effected by inunction.

The patient's diet and daily habits should in the first place be regulated; the former should consist of meat once daily, without any stimulants beyond beer or porter, sometimes better without any at all. He should keep regular and early hours, going to his bed not later than ten o'clock, and not rising before eight in the morning; during the day he may be engaged in business, if it be not of a laborious or exciting description.

933. R. Unguenti hydrargyri,

℥j.

Of this half a drachm should be rubbed in each morning after breakfast for twenty minutes or half an hour. The morning is the best time, because then the patient is the most vigorous; and besides, if rubbed at night, the heat and perspiration produced by lying in bed will cause a considerable loss of the ointment, and the patient breathes an atmosphere loaded with mercury. Unless the full time mentioned be given to the rubbing, half the ointment will be inefficient. It is usually necessary to impress the importance of this upon the patient, who, however, in a very short time lends a willing aid to the surgeon, finding his symptoms disappearing gradually, and his general health and strength improving rather than decreasing.

The inside of the thigh and popliteal space is the region where the inunction can be practiced. The patient should be told to rub in on each thigh upon alternate mornings, carefully washing off the old ointment with warm water and soap before commencing the new inunction; this prevents the skin from becoming irritated, and mercurial eczema appearing; if, however, a few scattered pustules do appear, the rubbing should be applied to the axillæ for a time. He is in the habit of directing the patient to take a hot-air or Turkish bath once or twice a week during treatment, and finds it not only preserves the skin from irritation by thoroughly cleansing it, but also facilitates the action of the mercury; patients, including those in hospital, always express a sense of comfort and relief from the use of the bath.

Many cases, particularly those belonging to the first division of the tertiary stage, are most benefitted by a combination of mercury and iodide of potassium. For this purpose add to the recipe gr. $\frac{1}{16}$ to $\frac{1}{12}$ of the corrosive chloride, or the biniodide of mercury, to each dose.

When our author employs mercury internally in secondary syphilis, he considers the following a good combination :

- | | | | |
|---------|--------------------|--------|----|
| 934. R. | Pilulæ hydrargyri, | 3j | |
| | Extracti opii, | gr. v. | M. |
- For twenty pills. One of these daily will be as good internal treatment as is possible.

Iron or quinine may at times be advantageously combined with some of the preparations of mercury, particularly when marked symptoms of anæmia show themselves at the commencement of the secondary period, which is very frequently the case in women.

- | | | | |
|---------|----------------------------|--------|----|
| 935. R. | Pilulæ hydrargyri, | gr. xx | |
| | Ferri sulphatis exsiccati, | gr. x | |
| | Extracti opii, | gr. v. | M. |
- For twenty pills.

- | | | | |
|---------|-----------------------|----|----------|
| 936. R. | Hydrargyri cum cretâ, | | |
| | Quininæ sulphatis, | āā | ℥j |
| | Extracti opii, | | gr. iij. |
- For ten pills. M.

In the tertiary stage, our author employs iodide of potassium, in doses of from eight to ten grains thrice daily. A salt of ammonium added to the solution seems to increase the activity of the iodide ; thus :

- | | | | |
|---------|------------------------------|---------|----|
| 937. R. | Potassii iodidi, | 3iv | |
| | Ammonii muriatis, | 3ij | |
| | Tincturæ cinchonæ compositæ, | f. 3iv. | M. |
- A teaspoonful in a wineglassful of water, thrice daily.

DR. J. L. MILTON, EDINBURGH.

This writer (*Edinburgh Medical Journal*, March, 1875) states that he has found "Zittmann's decoction" a very important aid in secondary syphilis. This is the *decoctum sarsaparillæ compositum* of the *German Pharmacopœia*, and contains small portions of senna and of the mild chloride of mercury and red sulphide of mercury. A formula for it is given in the *United States Dispensatory* (thirteenth edition).

Mr. MILTON says that chance led him to try the Zittmann decoction, and with such surprisingly good results that he now uses it in

every case and form of syphilis. He first administers a course of iodide of potassium and bichloride of mercury. He strongly advises that, at the outset, the dose should be very small, not more than two or three grains of the potassium, and from the thirtieth up to the twentieth of a grain of the bichloride of mercury. Nothing can militate more effectually against the success of the treatment than to risk setting up irritation by giving the remedies too freely at first, or even by raising the strength of them too rapidly at any time. The object in view is effectually defeated so soon as ever symptoms of iodic poisoning begin. There is no choice but to entirely abandon the medicine for some days, perhaps weeks, but certainly until the symptoms have quite abated.

But all precautions for the purpose of enabling the stomach to bear the potassium and mercury fail more or less frequently unless aperients are combined with them, and the patient is restricted to a proper diet. As to the aperient, it is essential that it should consist of two chief ingredients—a pill to be taken over night, and a draft for morning use. He has repeatedly tried both separately, and has failed quite often enough with both to deter him from any repetition of the experiment. The pill may consist of colocynth, blue pill and hyoscyamus, or a mixture of rhubarb, soap and jalap. A sedative or aromatic sufficiently potent to obviate griping is an essential feature in its composition. For the purgative draught, nothing equals a freshly prepared salts-and-senna mixture. There may be at the outset some depression after a brisk aperient, but the reaction which follows is generally attended by a feeling of relief, of greater fitness for work, mental or bodily, and better spirits—signs not at all likely to attend a prejudicial action of the medicine.

So soon as ever these symptoms are observed, the dose of the iodide and perchloride may be raised at the discretion of the practitioner. He seldom, in his own practice, goes beyond five grains of the former and an eighth of a grain of the latter, two or three times a day, and always stops short of setting up much irritation. The combined treatment is continued for four or five weeks prior to the beginning with a mercurial bath, and, if possible, during the whole time it is employed.

Directly the dose of the iodide is increased, the patient may begin to take a simple vapor-bath once or twice a week, and under any circumstances a course of these should precede the use of the medicated bath. After a few weeks of simple vapor-bath, a mercurial

vapor-bath may be taken twice or three times a week. After a few weeks of this, he places the patient on the Zittmann decoction for eight days. He modifies the decoction, however, quite materially. He omits the sarsaparilla, the antimony and perhaps the mercury, so that the mixture becomes, in reality, a decoction of senna highly diluted by licorice and aromatics. In other words, Mr. MILTON's treatment is one in which the system is brought *very gradually* under the influence of mercury and iodide of potash, and is from time to time *very thoroughly* purged. If the purging leads to loss of appetite and debility, he administers dilute nitric or muriatic or phosphoric acid to restore its tone.

PROF. S. D. GROSS, OF PHILADELPHIA.

Professor GROSS almost invariably combines the bichloride of mercury with iodide of potassium in the treatment of tertiary syphilis, particularly when the affection is of long standing. An infirm, broken state of the system is no bar to the use of mercury in this combination; on the contrary, it often affords the medicine an opportunity for its best display. To counteract any disagreeable effects of the above recipe, such as gastric irritation, diarrhœa, etc. (which, however, rarely ensue), an anodyne, as a small quantity of morphine, or from five to ten drops of the acetated tincture of opium, may be combined with each dose.

In regard to the dose of iodide of potassium in the treatment of tertiary syphilis, Professor GROSS states that long experience has taught him that while less than ten grains thrice daily will rarely do much good, there are few cases in which more than this quantity is really ever needed.

With reference to the employment of iodide of sodium and iodide of ammonium as substitutes for iodide of potassium, Professor GROSS sometimes recommends their use in five-grain doses. CULLERIER says that the iodide of ammonium gives no better results than the iodide of potassium, and he has abandoned its use. It has been asserted, however, on good authority, that the iodides of sodium and ammonium will sometimes succeed in doses in which the iodide of potassium has failed (TANNER and others). They are more nauseous than the iodide of potassium.

Bromide of potassium has been employed in tertiary syphilis recently. CULLERIER says no reliance can be placed on this remedy; BERKELEY HILL asserts that in small doses, in conjunction with the

iodide, it increases the energy of the latter very materially. It should be borne in mind, in administering the bromide of potassium, that it is decomposed by a syrup.

To overcome the disagreeable taste of the iodide of potassium, so often complained of by patients, PAGET says that a mixture of whisky and the compound syrup of sarsaparilla makes the best vehicle.

M. LIEGEOIS.

Our author employs the following formula for the hypodermic injection of corrosive sublimate in secondary syphilis :

938. R.	Hydrargyri chloridi corrosivi,	gr. iij	
	Morphinæ muriatis,	gr. iss	
	Aquæ destillatæ,	f. 3xxiijss.	M.

℥xvss (= about gr. $\frac{1}{32}$ of the sublimate.) Ordinarily no inflammation follows this injection.

DR. ALFRED EICHLER, SAN FRANCISCO.

Very recently Dr. ALFRED EICHLER (*Med. News*, 1892,) has contributed a paper upon the treatment of early syphilis, in which the therapeutic measures are excellently described, and well vouched for. Dr. EICHLER has had but little experience with the salicylate of mercury in hypodermatic administration, having used in nearly all his cases the following formula, suggested by Prof. ROBERTS BARTHOLOW :

939. R.	Hydrargyri chloridi corrosivi,	gr. j	
	Glycerini,		
	Aquæ,	āā	f. 3j. M.

Ten minims contain gr. $\frac{1}{12}$.
S. Inject ten minims daily.

His cases are as a rule private patients, and are commonly seen shortly after the appearance of the primary sore. They are then given some placebo, usually given with a view of regulating the bowels or quieting a disturbed digestive tract, until the appearance of a rash or some other symptom confirmatory of the diagnosis of syphilis. The initial lesion is dressed daily with an application of equal parts of mercurial plaster and carbolated vaseline. If the sore looks more like a soft chancre, or chancroid, an ointment of iodoform and vaseline (1:4), scented with oil of rose, is applied twice daily. The patient is told to call at least twice a week, and is examined for the rash or for other symptoms of syphilis each time; after the sore has healed he is to call at least once a week, and an examination each time carefully made.

When the eruption appears, hypodermic injections of the above remedy are made at once, one daily until twelve are given, corresponding to one grain of the corrosive sublimate. Then a week's intermission is permitted, when a second dozen are given, and another week's interval followed by the administration of a third dozen injections. Dr. EICHLER uses a long delicate needle and makes the injections deep, thus avoiding the pain and tension to a great degree. The skin of the back is selected and a part of the surface well cleansed with a clean rag wet with ether to remove perspiration, etc.; then a five per cent. solution of carbolic acid is applied by means of a pledget of absorbent cotton. The skin is then dried and a drop of ether placed over the spot where the injection is to be made, producing a temporary local anæsthesia. The injection is then made deep into the tissues—the deeper, the less pain experienced afterwards by the patient. Where the injection is made a hard nodule results, but is absorbed within a few days; when a number of injections are made in the same neighborhood considerable tension may be felt, and the intervals of a week in the treatment are intended to provide time for the disappearance of these unpleasant symptoms. The application of some softening ointment gives quick relief, however; and the use of iodine hastens the absorption considerably.

During the treatment Dr. EICHLER cautions that strict attention for mercurial stomatitis be taken, and provides each patient with a tooth-powder composed of:

940. R.	Potassii chloratis,		
	Pulveris aluminis,		
	Sacchari lactis,	āā	3j
	Pulveris kino,		3j
	Olei menthæ piperitæ,		q. s. M.

This should be used after each meal, and the mouth well rinsed, and often, with pure water.

In addition, the patient is cautioned to live as much out-door life as possible; to take at least a four-mile tramp daily if occupied within doors at business; to take frequent baths, and to be abstemious in the matter of alcoholics.

DR. CHARLES CZADEK, OF KIEFF, RUSSIA.

This gentleman (*Med. News*, 1891,) has contributed an excellent review of the recent advances in the treatment of syphilis, which may with profit be quoted at some length at this point.

"KAPOSI, of Vienna, (*Wien. Med. Presse*, 1890,) states that the primary sore is best treated with mercurial plaster. He does not favor excision. Anti-syphilitic treatment should only be instituted when the roseola appears; immediate treatment only delays the constitutional symptoms and has frequently been found to be followed by cerebral symptoms. KAPOSI regards inunctions as an unscientific, but most efficacious method of treatment. He recommends subcutaneous injections of soluble preparations of mercury as more scientific and exact. He is decidedly opposed to the hypodermic introduction of insoluble compounds of mercury, chiefly because they are but slowly absorbed; and if symptoms of mercurialism appear, the mercury stored in the tissues cannot be at once removed in order to arrest the stomatitis or other complications. Iodine and sulphur baths are recommended as protectives against relapses after primary relief of the symptoms; hydropathic measures generally are valuable in after-treatment."

JULIUS ALTHAUS, of London, before the International Medical Congress at Berlin, in 1890, laid down the following rules in the treatment of syphilis of the nervous system: The prophylactic measures are especially important. Of these this authority recommends, first, the excision of the primary sore whenever practicable; second, a mercurial treatment of about three months' duration after the appearance of the secondary symptoms. For the curative treatment of nerve-syphilis ALTHAUS "considers the periodical and long-continued hypodermatic injection of small doses of a non-irritant, insoluble preparation of mercury the most important remedy." For this purpose he recommends what he calls "carbolized mercurial cream," a preparation made by rubbing up metallic mercury with lanolin and afterwards mixing with carbolized oil. Iodide of potassium, general tonics, the constant galvanic current, the application of cold, are all agencies of value in the treatment of nerve-syphilis.

In the internal treatment of syphilis, as the proper mercurial preparation should be selected one of sufficiently prompt action, which does not, however, unduly irritate the gastro-intestinal tract or affect the general economy. PETRINI (*Wien. Med. Presse*, 1890,) believes tannate of mercury answers these demands in a high degree. A pill containing two thirds of a grain of tannate of mercury made up with extract of gentian is ordered once a day with a meal; after ten days the dose is doubled. The patient is treated thus for twenty-five or thirty days, until the symptoms have disappeared.

BÜCHLER (*Four. Cutan. and Genito-Urin. Dis.*, 1890,) recommends the employment of salicylate of mercury as being quite as active as the protiodide of mercury, and possessing the advantage over the latter salt of not irritating the alimentary tract as much. CZADEK has also used this compound, and reports very favorably upon it, giving one-quarter to one-half a grain repeated two or three times daily for periods of several months without producing colic or other disagreeable symptoms.

QUINQUAUD (*Brit. Jour. of Dermatol.*, 1891,) recommends that the following mixture be spread upon linen so as to obtain 14 strips each nine feet long and seven or eight inches wide, and applied :

941. R.	Calomel,	$\frac{3}{4}$ xxxij	
	Castor oil,	f. $\frac{3}{4}$ x	
	Diachylon plaster,	$\frac{3}{4}$ c.	M.

Applied as directed, each square of $2\frac{1}{2}$ inches contains about gr. xviii of calomel. The skin having been washed with soap, such a square of plaster is applied over the spleen every eight or ten days. The mercury can be detected in the urine in several days after the first application, and therapeutic effects are quickly seen.

"The subject of hypodermic treatment of syphilis with various soluble and insoluble salts of mercury has lately attracted considerable attention among modern syphilographers. The relative advantages and disadvantages of this method of treatment, as well as the employment of the newest preparations of mercury, has been the theme of liveliest discussion before learned societies; a number of contributions have recently been made upon this subject. The hypodermic or intra-muscular administration of insoluble preparations of mercury, already a favorite method with some physicians of the old world, has quite lately also received the attention of eminent American specialists."

MONCORVO, of Rio Janeiro, (*Satellite*, 1890) has tried this method of medication with a number of mercurial preparations, but expresses himself as somewhat disappointed with the results, and considers it inferior to inunctions with the old mercurial ointment. Of the preparations the gray oil introduced by LANG was in his experience best tolerated, and was attended and followed by no pain. This gray oil consists of mercury rubbed up first with lanolin, and then diluted with oil. HERMAN KLOTZ, of New York, (*Four. of Cut. and Genito-Urin. Dis.*, 1890,) has used injections of various mercurial

preparations, as calomel, the yellow oxide, and the salicylate, and states that there is a great difference in the effects of these, calomel undoubtedly taking first rank. On the continent there have been many experiments with the various insoluble preparations of mercury as administered by subcutaneous or intra-muscular injection, the salicylate, the thymolo-acetate and the benzoate recently receiving the most attention. GOLD, of Odessa, (*Trans. of Med. Assoc. of Odessa*, 1890,) claims to have made 1609 injections, without the development of a single abscess; he regards salicylate of mercury as altogether the best insoluble preparation of mercury for hypodermic administration in syphilis. LINDEBORN, of Frankfort-on-the-Main, (*Therap. Monatsh.*, 1890,) has employed the salicylate of mercury in the treatment of syphilis in the following solution:

942. R.	Hydrargyri salicylatis, Paraffini liquidi,	1 10.	M.
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The injections were made every five days. The therapeutic results were most satisfactory. LEZIUS, of Dorpat, (*St. Petersburger Med. Wochensch.*, 1891,) is another who has spoken most favorably of the salicylate of mercury in hypodermic administration in syphilis. The author has personally employed intra-muscular injections of salicylate of mercury in a long series of cases of secondary and tertiary syphilis, and always with most satisfactory results. The solution used was:

943. R.	Hydrargyri salicylatis, Mucilaginis gummi arabici, Aquæ destillatæ,	gr. xvj-xxiv gr. viij f. 3 vss.	M.
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Of this ℥xv were injected at one time, repeated at intervals of three days.

CZADEK selected the gluteal regions for the injection. The value of the remedy was especially notable in syphilitic affections of the skin and mucous membranes, eruptions and slight relapsing forms yielding in from two to four weeks.

Thymolate of mercury was recommended first in 1889 by JADASOHN, ZEISING, and WELANDER for hypodermatic medication, and among the more recent advocates of this remedy are CEHAK, of Vienna (*Allg. Wien. Med. Zeitung*, 1890), and LOWENTHAL (*Deut. Med. Wochensch.*, 1890). CZADEK has used the thymolo-acetate with advantage by hypodermic administration in several cases of syphilis, according to the following formula:

944. R.	Hydrargyri thymolo-acetatis,	1.5	
	Mucilag. gummi arabici,	0.5	
	Aquæ destillatæ,	20.	M.
	Ft. suspensio.		
	Sig.—Administer hypodermically ℥xv at intervals of four days.		

Among other preparations of mercury used in this same manner may be mentioned the benzoate of mercury, recommended by BALZER and THIROLOIX (*La Méd. Mod.*, 1890), the succinamide, recommended by VOLLERT, of Strassburg, and by SELENIEFF (*St. Petersburger Med. Wochensch.*, 1890), the hydrochloric gluten-peptone sublimate, recommended by HÜFLER, of Erlangen (*Therap. Monatsh.*, 1890), the oxycyanide, recommended by BOER, of Berlin, (*Therap. Monatsh.*, 1890), and the black oxide, recommended by HARTMAN (*St. Petersburger Med. Wochensch.*, 1890).

In the hypodermic or intra-muscular administration of these substances, most of which are insoluble, there is, however; some danger. The entrance of the drug into a vein, a very possible accident in intra-muscular injections, is apt to give rise to embolic pneumonias; abscesses not infrequently arise unless the most strict care is taken in the practice; infiltrations about the seat of injection are not at all uncommon. The formation of small tumors containing metallic mercury has been recorded in at least one case; the development of distressing and persistent ulcerative stomatitis has been declared due to this mode of medication, and numerous other more or less serious accidents have been placed upon record. Taking all things into consideration, however, CZADEK concludes that "injections of insoluble salts of mercury at the present time constitute one of the most favorite and valuable methods of mercurial treatment in the practice of a number of specialists in the Old World. Comparative experiments with the various remedies recently introduced for the subcutaneous treatment of syphilis have resulted in demonstrating the superiority of the salicylate and the thymolate of mercury, as convenient curative agents."

Of non-mercurial remedies, *iodol*, a substitute for iodoform, has been introduced into the list of anti-syphilitic therapeutic agents. It is said to have especially good results in the treatment of the later manifestations of syphilis. It contains a large proportion of iodine, is harmless, tasteless and odorless, and does not disturb the intestinal tract. It may be given continuously for a long time in doses of eight to sixteen grains two or three times a day, without producing any untoward symptoms.

Another new anti-syphilitic remedy, *cascara amarga*, has been recently recommended by HAINES (*Therap. Gazette*, 1890,) who believes it is almost a specific in the disease; it is of especial use in the ulcerations of the tertiary stage, and in the tertiary cases where cachexia is present—cases where mercury could not be given, and in which the depressing effects of the iodides would be dreaded.

DR. ALEXANDER M'BRIDE, OF CINCINNATI.

This practitioner (*Lancet and Observer*, December, 1872,) is one of several who, in the last few years, have urged the restoration of *guaiacum* to its old place as a very valuable remedy in syphilis. He has employed it for ten years with excellent results. He gives the drug in pill form, but it must be made in a particular manner, or it will be nauseous, and the patient will tire of it. Alcohol, and nothing else, is the only proper excipient. The way to make the pill is as follows: Pulverize the guaiac and sift out ligneous and cortical impurities; then let the operator be in a warm room, have the mortar warm and the pill machine warm; put the powdered gum into the mortar, add very sparingly of alcohol, beat thoroughly and add more if necessary, but be careful to not get in too much. The object aimed at is to form a mass as stiff as can be worked by means of warmth and a very little alcohol. When the mass is formed, work it rapidly into pills, and roll them into a cold tin pan in a cool room. If one makes these pills any other way, they will prove more or less a failure.

Use no pulverized licorice or other powder. If one uses ever so little too much alcohol, the pill will be soft and never harden.

Of these pills the patient can take from nine to eighteen per day, usually twelve, and will declare he feels better all the time—so much so that if he runs out of pills he will soon call for more. This treatment applies to secondary and tertiary, is excellently adapted to external or cutaneous manifestations, and may be carried on without other medicines.

THOMAS HAWKES TANNER, M. D., F. L. S., ETC., LONDON.

945. R.	Hydrargyri chloridi corrosivi,	gr. ij	
	Pulveris opii,	gr. v-viiij	
	Pulveris guaiaci,	3ss.	M.

Divide into sixteen pills. One twice or thrice a day, where it is desirable to continue the use of the corrosive sublimate over many weeks.

SURGEON W. S. W. RUSCHENBURGER, U. S. N.

946. R. Hydrargyri iodidi rubri, gr. i
 Iodinii, gr. ij
 Potassii iodidi, ℥j
 Syrupi sarsaparillæ compositi, f. $\frac{3}{4}$ xv
 Aquæ, f. $\frac{3}{4}$ j. M.
 Tablespoonful four times a day.

TREATMENT OF THE ERUPTION.

DR. E. L. KEYES, OF NEW YORK.

In treating the cutaneous lesions, the general rule is that the more chronic the lesions the more stimulating must be the local application—so long as the skin remains unbroken. With ulcers, the strength of the ointment must be modified according to the sensations of the patient. The following ointments are most useful in erythematous lesions and the papular syphilide:

947. R. Hydrargyri oleatis, 5 per cent.

Or:

948. R. Hydrargyri ammoniati, ℥j-ij
 Cosmolinae, ℥j. M.

On scaly and tuberculated patches, the following are efficient:

949. R. Hydrargyri oxidi rubri, ℥ss-ij
 Cosmolinae, ℥j. M.

Or:

950. R. Hydrargyri oxidi nitratis, q. s.
 To be used pure or diluted one-half.

When these do not seem to act promptly, the following will be found of service:

951. R. Hydrargyri iodidi, ℥j-ij
 Cosmolinae, ℥j. M.

For ulcerated surfaces and patches of rupia deprived of their scabs, these ointments may also be used, reduced to such proportion that their application does not cause pain. An excellent local effect upon ulcers may be often produced by sprinkling them with iodoform or black oxide of mercury, or calomel, alone or combined with oxide of zinc, or with the addition of a little camphor.

When an ulcer is peculiarly indolent, indurated and chronic, new activity may be excited in it by packing it full of crystals of *acetate of soda*. The application produces considerable pain, lasting often several hours, but it has an excellent effect in freshening up a sluggish surface. Solution of *chloral*, gr. v to aquæ f. ʒj, may also be used with advantage. Lint, soaked in this solution, is packed into the ulcer. For mucous and scaly patches of the mouth, the patient should be instructed to cease using tobacco and to touch the spots once or twice a day with a smooth lump of sulphate of copper.

The Italian physicians have made strong recommendations of *tayuya* in syphilis; but it has disappointed expectations.

DR. BOINET, FRANCE.

952. R. Acidi tannici, ʒiv
 Tincturæ iodinii, gr. vij
 Aquæ, Oj. M.
- A tablespoonful, in wine, twice or thrice daily, in syphilitic diseases.

H. GREEN.

953. R. Hydrargyri chloridi corrosivi, gr. iv
 Tincturæ gentianæ, f. ʒ iv
 Syrupi aurantii florum, f. ʒ iss. M.
- A teaspoonful thrice daily in secondary syphilis and chronic skin affections.

As an application to ulcerated and rupial sores the following ointment, suggested by the late Dr. FRANK MAURY, of Philadelphia, is a most excellent remedy. It is known at the Philadelphia Hospital, where it has become one of the stock ointments, as "Maury's Ointment:"

954. R. Unguenti hydrargyri nitratis, 3j
 Pulveris rhei, āā
 Pulveris opii, 3ss
 Unguenti simplicis, q. s. ad ʒj. M.

Prof. GROSS frequently advised in the treatment of the secondary skin manifestations:

955. R. Hydrargyri chloridi mitis, gr. xviii
 Antimonii et potassii tartratis, gr. ss
 Pulveris rhei, gr. vj. M.
- Ft. massa et div. in pilulas, no xviii.
 Sig.: One three times daily an hour after meals.

In the venereal wards of Philadelphia Hospital the skin lesions

were frequently successfully combated by baths of fifteen or thirty minutes' duration at bed time in

956. R. Corrosive sublimate, 3ij
Warm water, gal. xxx.

MUCOUS PATCHES AND SYPHILITIC SORE THROAT.

JOHN K. BARTON, M. D. (DUBLIN), F. R. C. S. I., ETC.

The special treatment for *secondary ulceration of the throat* is:

957. R. Argenti nitratis, gr. xxx-xl
Aquæ destillatæ, f. 3j. M.

To be freely applied over the velum and back of the pharynx every day, or every other day, while any ulceration or redness continues. The solution may be used with the spray producer.

If toward the close of the secondary period sore throat re-appears, as it often does, it then does not yield so rapidly, and it will be necessary to prescribe the following mixture, which will quickly cause it to heal:

958. R. Potassii iodidi, ʒij
Potassii chloratis, ʒiv
Aquæ, f. 3 viij. M.
Two tablespoonfuls thrice daily.

DR. ROSS, FRANCE.

959. R. Tincturæ iodinii, āā ʒj
Tincturæ opii, f. 3j
Aquæ destillatæ, f. 3 v. M.
This gargle is useful in syphilitic ulcerations of the throat.

DR. BIETT, FRANCE.

960. R. Hydrargyri chloridi corrosivi, gr. ijss
Ammonii chloridi, ʒj
Vini opii, f. 3j
Mucilaginis acaciæ, āā f. 3 ss
Mellis despumati, f. 3 v. M.
Aquæ destillatæ,
A gargle, advised in syphilitic sore throat.

CREQUY (*L'Union Médicale*, 1890) has recommended the following tablets in the treatment of mucous patches in the mouth and pharynx:

961. R. Protiodide of mercury, gr. $\frac{3}{4}$
Chlorate of potassium, gr. ij
Iodate of potassium, gr. ʒ
Chocolate, sufficient to make a tablet.

One or two of these tablets may be taken each day after a meal. Care must be had that mercurialism does not occur.

In the Philadelphia Hospital venereal wards the following prescriptions for syphilitic sore throat and oral mucous patches were found after large experience to be of decided value :

962. R. Acidi carbolici, gtt. ij
 Potassii chloratis, 3 ij
 Liquoris calcis, q. s. ad f. 3 iv. M.
 Sig.—Apply locally on a brush thrice daily.

And,

963. R. Hydrargyri bichloridi, gr. vj
 Acidi hydrochlorici, gtt. xij
 Syrupi, f. 3 j
 Aquæ destillatæ, q. s. ad f. 3 viij. M.
 Use as a gargle several times daily.

SYPHILITIC LARYNGITIS.

ROBERT MELCHIOR.

964. R. Hydrargyri chloridi corrosivi, gr. ij-ijj
 Decocti conii, f. 3 vj. M.
 A useful gargle in syphilitic ulcers of the mouth and throat.
965. R. Potassii iodidi, gr. xv
 Mellis despumati, f. 3 j
 Decocti hordei, f. 3 iv. M.
 A gargle, to be employed as above.
966. R. Potassii iodidi, gr. ix
 Tincturæ iodinii, f. 3 ss
 Aquæ destillatæ, f. 3 v. M.
 A gargle, to be employed as above.
967. R. Hydrargyri chloridi corrosivi, gr. iij
 Vini opii, m v
 Mellis rosæ, f. 3 j
 Aquæ rosæ, f. 3 vj. M.
 A gargle, to be employed as above.

CONGENITAL SYPHILIS.

PROF. J. LEWIS SMITH, M. D., NEW YORK.

In infantile syphilis, the following formulæ may be employed :

968. R. Hydrargyri cum cretâ, gr. iij-vj.
 Sacchari albi, ʒj. M.
 Divide into twelve powders. One to be taken thrice daily.

969. R. Hydrargyri chloridi corrosivi,
Syrupi sarsaparillæ compositi,
Aquæ,

gr. j-ij
f. $\frac{3}{4}$ ij
f. $\frac{3}{4}$ viij.

M.

A teaspoonful thrice daily.

Mercury, in whatever form employed, should not be discontinued entirely until several weeks after the syphilitic symptoms in the child have disappeared. It is proper to continue it for a time, in diminished quantity, after the health seems fully restored.

When the mercurial is omitted, tonics are often required. The preparations of cinchona are useful in these cases, as are also those of iron. The liquor ferri iodidi is especially useful in this class of cases.

PROF. E. L. KEYES, OF NEW YORK.

Before the child is born, if there is reason to believe it a syphilitic, the mother should be brought mildly under mercurial treatment to prevent abortion. Inunctions and the use of gray powder constitute the favorite methods of applying mercury in cases of inherited syphilis. Gray powder is given in doses of a grain, more or less, repeated according to effect upon the child and the symptoms. DR. KEYES prefers to use the bichloride, given in weak solution, gr. $\frac{1}{8}$ in a teaspoonful of water, given every hour or two, day and night, mixed with the infant's food. If it does not cause vomiting or diarrhœa, the dose may be somewhat raised. Later in the life of the child, in the treatment of the tardy lesions of the affection, the iodides are to be employed; but in infants they are not well suited because they cause gastric distress. Locally the skin lesions require cleanliness, dusting with zinc oxide, calomel, or iodoform, or the use of mild mercurial ointments.

THE SOFT CHANCER, CHANCROID.

DR. DU CASTEL.

The danger of simple chancre is not in the production of constitutional disease but in its local virulence, and the ease with which it reinoculates itself upon the surrounding tissues. The object of treatment must be to destroy its virulence and convert the lesion into a simple wound. DU CASTEL regards excision as bad treat-

ment, because of the danger of inoculating the fresh surface and thus simply enlarging the sore. The best mode of treatment is rather by means of cauterization by means of the thermo-cautery or strong chemical cauterants. RICORD used the carbo-sulphuric caustic (p. 608), an application of undoubted value in cases of chancroid, but extremely painful. DIDAY prefers Canquoin's paste, chloride of zinc. This is applied after the sore is well cleansed (it should not be bleeding, however), care being taken to cover the entire surface. Around the edge of the application a protecting ring of diachylon ointment is drawn, and a drop or two of collodion let fall over the paste to protect the whole. In an hour or two the collodion is dissolved off by ether, and the zinc chloride is readily detachable, leaving a dry eschar, in which should be no suppurating points if the treatment has been successful. After the eschar drops off, the wound is left in a healthy condition and readily heals. Applications of solutions of nitrate of silver have been found very excellent by such specialists as DIDAY and FOURNIER. According to ROLLET and MAURIAC the following are also very useful:

970. R.	Water, Lemon juice, Laudanum, Goulard's extract,	f. 3vj f. 3iss ℥xlx 3j.	M.
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Or,

971. R.	Water, Citric acid, Hydrochloric acid, Perchloride of iron,	f. 3j gr. xlv ℥xlx gr. xlv.	M.
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BERKELEY HILL, M. D., LONDON, F. R. C. S., ETC.

Our author states that in the treatment of soft chancres the first thing is to remove general causes of irritation, such as too stimulating wine, and especially venery. All severe exercise must be relinquished; in fact, confinement to the house for some days is often time gained by the progress the sore makes with rest. While the wound is healing the patient should always avoid standing long at a time, to lessen the risk of bubo; the horizontal position, moreover, greatly promotes healing the sore. If erections at night are troublesome, they may often be prevented by the patient's last meal being a light one, taken two or three hours before bed-time. For persons of ordinary health it is not necessary to do more than this; but if patients are exhausted or in a debilitated condition, ordinary rules for im-

provement of the health are necessary; quiet, rest, with good diet and stimulants, must be freely given. The digestion may be invigorated by tonics, such as:

972.	R.	Vini opii, Vini aromatici, (For formula for vinum aromaticum, see F. 867).	m _{xv-xxx} f. $\frac{3}{4}$ iij.	M.
973.	R.	Extracti opii, Decocti cinchonæ,	gr. xv-xxx f. $\frac{3}{4}$ iij.	M.
974.	R.	Acidi tannici, Aquæ rosæ,	gr. xv-xxx f. $\frac{3}{4}$ iij.	M.
975.	R.	Argenti nitratis, Aquæ destillatæ,	gr. xv-xlv f. $\frac{3}{4}$ iij.	M.
976.	R.	Tincturæ iodinii, Aquæ destillatæ,	f. $\frac{3}{4}$ iss-ijss f. $\frac{3}{4}$ iij.	M.
977.	R.	Ferri et potassii tartratis, Aquæ destillatæ,	℥iv-3v f. $\frac{3}{4}$ iij.	M.
978.	R.	Zinci chloridi, Aquæ destillatæ,	gr. iss-ijj f. $\frac{3}{4}$ iij.	M.

The lotions of potassio-tartrate of iron and of the chloride of zinc are particularly indicated in order to combat *phagedæna*. For the same purpose the following may also be prescribed:

979.	R.	Pulveris carbonis ligni, Pulveris cinchonæ,	āā 3 ijss.	M.
980.	R.	Creosoti, Aquæ destillatæ,	gtt. xv-xlv f. $\frac{3}{4}$ x.	M.
981.	R.	Potassii iodidi, Tincturæ iodinii, Aquæ destillatæ,	gr. xv f. $\frac{3}{4}$ iss-v f. $\frac{3}{4}$ iij.	M.

The last recipe is the one which has given the best results in the hands of our author.

PROF. EDMUND LANGLEBERT, PARIS.

For *soft chancres* (chancroids) it is often needless to employ cauterants. It is sufficient to dress them several times daily with one of the following astringent lotions:

982.	R.	Aluminis, Aquæ rosæ,	℥ij-iv f. $\frac{3}{4}$ iij.	M.
983.	R.	Acidi nitrici diluti, Extracti cinchonæ fluidi,	f. $\frac{3}{4}$ j f. $\frac{3}{4}$ ij.	M.

From thirty to forty-five drops, in water, thrice daily.

Or,

984. R. Tincturæ ferri chloridi,
Spiritus chloroformi,
Glycerini,

āā f. ℥j. M.

A teaspoonful thrice daily, in water.

THE BUBO.

DR. H. E. WOODBURY, WASHINGTON.

This writer condemns (*Medical Times*, October, 1875,) the custom of opening buboes by free incisions. It is sufficient to pass a narrow-bladed bistoury through the gland, and then inject a drachm of diluted tincture of iodine (one part to four of water.) In some cases the use of the knife can be altogether avoided by the following treatment:

The patient is confined to his bed; a half-brick covered with flannel—a single thickness—is laid upon the bubo. A lump of ice is kept upon the brick, and as it melts, the flannel is saturated with ice-water. He has seen a large bubo disappear in twenty-four hours under this treatment by cold and pressure; a combination of iodine and iodide of potassium in syrup of sarsaparilla being administered internally. If this course be resorted to at the proper time, the necessity for surgical interference will often be avoided. If the knife be used, the smaller the incision, the better and more rapid the cure.

XVI. LESIONS OF THE BONES AND JOINTS, INCLUDING THE HEAD AND SPINE.

Bunion and Ganglion—Caries and Necrosis—Fractures—Osteitis and Periosteitis—Sprains—Synovitis—Injuries of the Head—Lesions of the Spine.

BUNION AND GANGLION.

BUNIONS.

PROF. S. D. GROSS, M. D., PHILADELPHIA.

For the radical cure of this troublesome affection, excision of the sac has been resorted to, but this operation is liable to be followed by erysipelas, and is dangerous. A much safer plan is to divide the sac subcutaneously with a delicate tenotome, cutting it up into numerous fragments, and then penciling the surface of the swelling several times a day with tincture of iodine. This method our author has practiced in numerous cases with gratifying results.

DR. CHARLES H. LOTHROP, OF IOWA.

This writer tried a variety of apparatus, Bigg's, Erichsen's, etc., without benefit, but is satisfied that the following will be found successful. Displacement of the toe is the obstacle to be overcome. A large and wide boot, shoe or slipper must be worn, made of cloth or other light material. A cot, made of muslin or some other firm and soft fabric, is placed upon the great toe of the affected foot. One or more strips of adhesive plaster are placed on and around the heel, their free extremities extending toward the free end of the cot upon the toe. The ends of the plaster and cot are then connected by means of a strong rubber ribbon, so that there is a constant traction of the toe to return to its natural position. If necessary, other strips of plaster should be applied to retain the apparatus in position, one about the instep, and one about the ball of the foot; while another may be bound about the great toe and attached to the second.

The contractile power of the external ligament and abductor pollicis is thus overcome without injury. If they do not readily yield, they should be partially divided by tenotomy. There is no danger of inflammation of the joints; and, by care and perseverance, the antagonistic power of the internal lateral ligament and abductor pollicis pedis is regained, and the distortion disappears. (*Boston Medical and Surgical Journal*, June, 1873.

GANGLION.

In this variety of cysts of the tendons, the custom and experience of the surgeon, as well as the age, sex, occupation and position of the patient, usually determine one of the following methods of treatment. Applications, *e. g.*, iodine liniment, or tincture, or blistering solution; pad and strapping; bursting, either by digital pressure, or by striking with the back of a book; incisions, either direct or subcutaneous; drainage, with internal irritation, by passing a stem of thread or silk directly through it. These, separately or conjointly, usually produce a temporary, if not always a permanent cure.

The pneumatic aspirator may often be conveniently used to draw off the contents of the sac; after which, if compression be used for a few days, the trouble is not liable to return.

Dr. J. PAULY, of Berlin, constricts the limb by the Esmarch bandage, anæsthetizes locally with the ether spray (which acts far more efficiently when the circulation is thus impeded), and opens the ganglion under a carbolic spray, empties it, and dresses it with a Lister dressing.

Dr. BIDDER, of Berlin, recommends the injection of carbolic acid. An ordinary hypodermic syringe, having a sharp needle with a cutting edge near the point, is filled with a two or three per cent. solution of carbolic acid. A fold of the skin being pinched up, the needle of the syringe is thrust under it until the point reaches the capsule of the ganglion. A little slit is made through this with the sharp-edged point of the needle, and then, the latter being slightly withdrawn, the contents of the ganglion are expressed into the surrounding tissues. The point of the needle is then once more inserted into the now emptied ganglion, and a few drops of the carbolic acid solution are injected, and a simple water dressing is afterwards applied.

CARIES AND NECROSIS.

In all cases of caries and necrosis affecting the superficial bones, Dr. F. KIRKPATRICK, Dublin, speaks with the utmost confidence of the application of *potassa cum calce*. (*British Medical Journal*, Aug., 1867.) He introduces it into the fistulæ leading down to the diseased bone, converting them into large openings, so that the carious bone is brought into view and within reach of the further application of the caustic.

MR. POLLOCK, OF LONDON.

The plan proposed by this surgeon (*Lancet*, May, 1870,) in caries and necrosis, and successfully carried out by others, is to expose the diseased bone and apply to it, with a glass brush, a solution of equal parts of *sulphuric acid* and water; or, a lotion of one part of the strong acid to six of water is kept in constant contact with the part by means of pieces of lint saturated with it. The strength of the acid is gradually raised, until it is applied pure.

Dr. EPHRAIM CUTTER, of Cambridge, Mass., has succeeded with a modified form of this treatment, injecting the diseased cavity with the following solution, at first twice a day, afterward once a day:

985.	R.	Acidi sulphurici aromatici,	f. ℥j	
		Aquæ destillatæ,	f. ℥j	M.

Numerous observers have testified to the great value in such diseases of what is known as "Villate's solution:"

986.	R.	Liquoris plumbi subacetatis,	f. ℥ iv	
		Zinci sulphatis,		
		Cupri sulphatis,	aa	℥ ij
		Aceti vini albi,		f. ℥ xxvj.
				M.

This should be used diluted, one part to ten of water, and applied to the part once or twice daily, by means of a sponge and bandage, or injected with a syringe. The solution, when properly made, has a light-green, opaque color. Wine vinegar, not cider vinegar, must be used in preparing it.

Prof. ANDREWS, of Chicago, has obtained excellent results in some cases of carious bones, by injecting them thoroughly, through the orifices of the wound, twice daily, with a solution of *carbolic acid*, ten grains to the ounce.

Of course, whatever local treatment is adopted, it must be backed by tonics, rest, nutritious food, bathing, and hygienic surroundings.

The internal administrations of the phosphates have been supposed, by some, to hasten the formation of healthy bone.

As these affections are so frequently connected with serious general impairment, struma or syphilis, and sometimes with toxical agents, as phosphorus, it is indispensable that whatever local treatment be adopted, the previous and family history of the patient be thoroughly investigated, and constitutional remedies be prescribed to correct any form of dyscrasia or chronic poisoning.

PROF. JAMES SYME, F. R. S. E.*

Caries of the Shafts of Bones.—It is noted, by this distinguished surgeon, that caries is generally seated in bones possessing a cellular or open texture, and when it occurs in those of the tabular or cylindrical kind, it is uniformly preceded by a morbid expansion of the compact structure, into a state resembling that which naturally belongs to those where the disease usually resides. The shafts of bones, especially the tibia, in consequence of chronic inflammation, are frequently enlarged, thickened, and consequently loosened in their texture, which comes to have nearly the same appearance as that of the spongy articulating extremities. In bones so altered caries occasionally occurs, but with one important difference from the disease as found in the spongy bones, and this is, that it is *easily curable*.

All incisions, rasping, trephining and cauterization are worse than needless. The disease will yield readily and certainly to the local application of *blisters* and the internal administration of *corrosive sublimate*, in usual doses.

Caries of Spongy Bones.—The treatment of true caries is preventive and remedial. The constitutional defects which tend to the production of the disease, must be carefully sought and combated. Locally, the actual cautery has been recommended; but, in most cases, it can hardly be applied to the affected surface, and its action is too limited. The best method is to destroy the carious bone by excision.

TUBERCULAR AND SCROFULOUS BONE AND JOINT DISEASE.

Dr. A. H. LEVINGS, of Wisconsin, in a paper read before the State Medical Society (*Medical News*, 1891), deals with the question of the treatment of strumous bones and joints.

* *Surgical Works*, Philadelphia, 1866.

He states that in these cases, so frequently met in connection with the hip-joint and knee-joint and spinal joints, that in the first place every available method for increasing the general health by nourishing food, fresh air, cold baths, tonics, etc., must be enforced. If the joint is irritated or inflamed it should be put at rest absolutely, as in a plaster-of-Paris dressing. When the joint is much inflamed, extension should be applied, particularly if there be much muscular contractile spasm; in this way relieving the inflamed surfaces of pressure and irritation and the consequent muscular spasmodic action, the pain, loss of sleep, and many of the other attendant symptoms. In this state of rest the best possible chance for the healing of the inflammation is afforded, and a comparatively favorable result may be attained. There may be some amount of ankylosis of the joint, but this should be accepted, lest in breaking it up the old inflammatory state be relighted.

BILLROTH and MIKULICZ advise, where the inflammatory condition in the joint is pronounced and pus is present, that the joint be entered with a trocar and iodoform-glycerine injections be made into it after draining off the pus and washing the cavity with a ten per cent. solution of boracic acid. This practice the writer regards with favor. He does not look kindly upon the use of tuberculin in these cases, as in acute cases with high fever it has seemed positively harmful.

For the primary tuberculous deposit in bone an early operation is indicated, to prevent infection of the surrounding parts and the general system, if possible.

FRACTURES.

In the reduction of fractures the matter of first application is that of position of the wounded part. This must have reference to the feelings of the patient in the first place, to the normal outline of the part, to the relations of the broken bone to the parts about it, the irritated muscles, the vessels, etc. In attempting reduction it is well to use all means to relax the contracted muscles, and as a rule the administration of an anæsthetic is necessary to accomplish this satisfactorily. The pain of reduction, too, in many cases, demands that the same precaution be taken. In other cases, however, where but

little displacement has occurred, this is not necessary, and the surgeon has little to do but fix the part in the proper position by means of the many and varied fixation apparatuses. Even in these cases, however, it is wise to administer an opiate to allay the pain which accompanies and follows the accident for the first few hours. Frequently the fracture comes for treatment with considerable swelling and inflammatory reaction present, sometimes of such a degree as to prevent the immediate manipulation of the part except in anaesthesia. In these cases the surgeon frequently seeks first to diminish these complications before final dressing of the broken member, and applies some sedative, as cloths wet with lead-water and laudanum, placing the part in an easy position, and fixing it with some light dressing for a few hours, until manipulation can be more easily practiced. In all fractures the end sought is the fixation of the part in the best possible position for the adjustment of the broken surfaces of the bone, and the means for this vary with each variety of fracture, and are to be found detailed rather in some systematic work upon operative surgery. In this fixation it may be, however, cautioned here that no undue tightness or constriction of the part be permitted, lest serious results be met from congestive disturbances.

PROF. FREDERICK S. DENNIS, OF NEW YORK.

Prof. DENNIS, in a paper read before the Philadelphia County Medical Society (*Med. News*, 1890) upon the treatment of compound fractures, lays down the following outline of action in case of these serious accidents: "I have made it a rule at the Harlem Hospital that antiseptic irrigation should be employed at the station-house or upon the sidewalk before the temporary splint is adjusted, and that at once after the irrigation, a clean antiseptic dressing be applied before the patient is lifted into the ambulance. I feel sure that the success of treatment in the present list of compound fractures is in great part due to a strict adherence to this important rule." (The list to which the writer refers is a large one, in which absolutely no septic accidents occurred and in which the mortality was zero.) "The patient having been carried either to the hospital or to his home, the temporary dressing is now to be removed, the fracture adjusted, and the first dressing applied. I cannot emphasize too strongly the point that the *first and aseptic dressing will greatly influence the prognosis*. This dressing, therefore, should be made in the operating-room, because the germ-laden air of the hos-

pital ward is not a safe place to expose a compound fracture. The instruments, sutures, ligatures, drainage-tubes, and everything possibly required for the operation should be immersed in carbolic acid solution (1:40). Several towels wrung out in a solution of bichloride of mercury (1:500) should be prepared for use about the table and around the limb, in order to protect the fracture from any possible contact with a surface not rendered aseptic. The wound itself should be covered by antiseptic gauze, while the limb is washed with water, then shaved and irrigated. Upon the limb is then poured a saturated solution of naphthalin in ether. This application removes all the fat, and the solution crystallizes upon the surface and protects the parts.

“Having made aseptic all the adjacent parts, the wound itself requires attention. All blood and debris should be washed away by a stream of warm bichloride of mercury solution (1:4000). The interior of the wound should be thoroughly irrigated with the same solution, and all hemorrhage completely arrested. Loose pieces of bone not attached to periosteum should be removed. All pieces of fascia, fatty tissue, muscular shreds and lacerated integument, should be cut away with scissors, and then a final ablution made. The drainage tube should be introduced into the bottom of the wound, and if the wound is so situated as to drain well, there is no necessity for a counter-opening. The tube is then cut off flush with the surface of the skin, and fastened by a safety-pin. The wound is now closed by cat-gut sutures, which completes the operative technique. The towels should now be changed and clean ones substituted, which should also be wrung from bichloride solution. The limb is now in readiness for the application of the antiseptic dressings. This dressing, above described, can be done without an anæsthetic, and as a rule with little or no pain. When the compound fracture is extensive, it is necessary to administer ether, so that the dressing can be completed from beginning to end while the patient is under the influence of an anæsthetic. The fragments can now be adjusted, and if the displacement is great a silver wire can be introduced to keep them in place. Again, it may be necessary to introduce, besides the wire through the bone, some deep catgut sutures, which are carried through the muscles. Deep sutures are necessary in all extensive and gaping wounds of the soft parts, especially when such muscles as the biceps or triceps, or the quadriceps extensor, are divided. These sutures must be independent of the superficial set.

Such wounds as just described require free drainage, and counter-opening is necessary in order to meet the requirements of the case.

"Another class of compound fractures is often met where the wound is very small, and with these cases a different plan should be adopted. The irrigation should be made around and in the wound, and then it can be hermetically sealed by sprinkling iodoform over the perforation, and painting styptic collodion over the iodoform, and then irrigating with an antiseptic solution. This mixture will soon coagulate, and the medium of sealing is surgically clean, and then the fracture is ready for the antiseptic dressings. Thus it is seen that the small wounds can be hermetically sealed; the medium sized wounds closed by sutures and drained through the existing opening; and the large wounds drained through a counter-opening and sewed with deep sutures, and the fragments held together by silver wire.

"Having completed the operative technique in one of the three ways mentioned, the parts are now prepared for the antiseptic dressings. Iodoform gauze, or a small piece of oil-silk protective, should be placed over the wound, with a hole cut in it to allow the mouth of the tube to drain into the dressings. Iodoform gauze is used because bichloride gauze irritates the wound. The bichloride gauze is next applied in loose pieces over the iodoform gauze and around the wound. This dressing is moist because dry antiseptic dressings next a wound are sources of infection. The loose and wet gauze is held *in situ* by the application of a moist bandage. Over this deep dressing absorbent cotton is placed and retained by a dry bandage.

"The last dressing affords a means of securing equable and uniform compression around the limb and over the fracture. The cotton, by its elasticity, expands and contracts so as to accommodate itself to the swelling of the parts in the vicinity of the fracture. This part of the dressing is very important as a means of preventing inflammatory swelling and of affording comfort to the patient. Four strips of sheet-iron about an inch in width are now adjusted. One strip is to pass down on the posterior part of the limb, and over the heel and upon the sole of the foot. Two strips are placed upon the sides of the leg, and one upon the front of the leg, and bent so as to conform to the shape of the dorsum of the foot. Over these strips, plaster-of-Paris bandages are now applied, and the dressing is completed. The strips prevent any backward, as well as any lateral displacement of the fracture, and also do away with the necessity of a heavy splint.

"In three days a fenestrum is cut over the wound, and under continuous irrigation the drainage-tube is removed."

Within at least eight days the whole dressing should be removed, the part inspected, and a fresh one applied.

OSTEITIS AND PERIOSTEITIS.

In both the specific and non-specific forms of these associated affections, Mr. T. HOLMES has derived much advantage from the continued use of *iodide of potassium*.

987. R. Potassii iodidi,
Tincturæ opii,
Aquæ,

gr. v-xv
gtt. x-xx
f. $\frac{3}{4}$ ss. M.

This dose three times daily.

When inflammation is severe and suppuration threatening, an incision, reaching from one side of the tumor to the other, often gives instant and permanent relief.

In acute cases, the local treatment should begin by leeching, followed by hot fomentations, poultices and opium. *Blisters* are highly recommended by Professor CROSS. He applies one in such a manner as to cover the whole of the affected surface, and allows it to remain on until thorough vesication is produced. He also attaches much value to the internal use of *calomel*, commenced as soon as the patient is properly depleted, and steadily continued until gentle ptyalism is produced. He says there is no remedy which exerts so powerful and controlling an influence over inflammation of bone as this, and that there are few cases in which it is not applicable.

The value of the *seton*, in chronic osteitis, has lately been urged by Dr. J. A. AUSTIN, of England. (*Lancet*, Feb., 1877.) He introduces one steeped in carbolic oil, and leaves it there for several weeks. It is usually followed by a prompt diminution of the pain and other inflammatory symptoms.

PROFESSOR THEODOR BILLROTH.

Acute periosteitis is always dangerous to life, because pyemia is so apt to occur, especially when the femur is involved, and it is the more dangerous the longer the condition remains acute and the further it spreads.

In the treatment, we can accomplish more if we are called early; one of the most efficient remedies is painting the whole limb with *tincture of iodine*. This should be repeated until large vesicles form. When these dry up, more is applied. The patient is to be kept recumbent, which the pain itself usually enforces. Derivation to the intestinal canal, by saline purgatives, aids the treatment. Should suppuration occur and fluctuation be distinctly felt, openings should be made in such a way that the pus shall escape without being pressed out. If the fever continues, the suppuration remaining profuse, and the pain persistent, we may try the continued application of bladders of ice. Great advantage may also be obtained by the application of a fenestrated plaster splint. Much may be accomplished by great care and close attention to the patient.

The use of cups, leeches, mercurial ointment, and other antiphlogistic means, recommended by many at the outset of the disease, are, in Dr. BILLROTH'S opinion, inferior to the application of iodine.

Chronic periosteitis must be treated constitutionally with regard to the dyscrasia which induces it (as syphilis, scrofula, etc.). Locally, *rest* of the diseased part is the first and most general rule of treatment. *Elevation* of the part is also a valuable adjuvant, as it avoids congestion by furnishing a mechanical aid to the escape of the blood.

When the symptoms are seen at their commencement, resolution should be aimed for. To effect this, powerful antiphlogistic remedies are of little use. Leeches, cups, purgatives and ice are only beneficial in acute exacerbations; their action is temporary, and may prove hurtful, by exhausting the strength. The bladders of ice, extolled so highly by ESMARCH, are indicated in cases accompanied by great pain, but otherwise are not called for.

The resorbent and milder derivative remedies are those which act the best. Tincture of iodine, ointment of iodide of potash, mercurial ointment diluted with lard, mercurial plaster, ointment made with strong solution of nitrate of silver, hydropathic dressings and mild compression bandages, are the most appropriate measures. With these we can attack the disease when commencing, and may succeed in arresting it in its first stage.

If the process progresses, and the caries runs its course without suppuration, we may continue with the above remedies, and, in suitable cases, in vigorous persons, may combine with the above derivatives to the skin, such as setons, issues, the hot iron, etc. If the

signs of suppuration begin and abscesses form, there is still a chance that, by continuing these absorbent remedies, re-absorption may be induced.

Should this hope fail, the question arises: Shall we open the abscess, or wait for it to open? On this point, Prof. BILLROTH lays down the rule: If the abscess comes from a bone on which an operation is impossible or undesirable (as the vertebræ, sacrum, pelvis, ribs, knee-joint, etc.) *do not meddle with it*, but wait patiently till it opens. All the various methods proposed of opening large cold abscesses—subcutaneous puncture, drainage-tubes, caustics, Lister's plans, setons, etc.—are worse than needless, and the surgeon will always regret adopting them. Nothing, in any of these methods, in the least sanctions the claims made for them by their proposers.

In small abscesses originating in disease of the bones of the extremity, it is proper to open freely, as the reaction is insignificant. The wound may then be dressed with stimulating lotions. If the resultant ulcer does not improve under milder remedies, the hot iron may be applied; or the part may be cut; or the whole be extirpated.

SPRAINS.

In the treatment of sprains, surgeons differ somewhat. According to Mr. T. HOLMES, at first, while the active state of effusion is present, antiphlogistic measures are necessary. Where it is grateful to the patient, the sedulous application of *ice-bags* is, he thinks, the best; but if this is not tolerated, leeches, followed by warm fomentations or evaporating lotions, or irrigation with spirit and water, will best check the tendency to effusion. As soon as the patient can bear it, equable pressure, by strapping and bandage, or by splints, with perfect rest, should be adopted.

On the other hand, the eminent VELPEAU, and, more recently, Mr. SAMPSON GAMGEE, of Birmingham, England, have taught that not only can the patient bear well-applied pressure from the first, however great the swelling and acute the pain, but it may be laid down as a general proposition, to which there is no exception, that, in severe strains, effusion is most surely checked, and once it has occurred, its absorption is most rapidly promoted, while pain is most effectually relieved, by pressure and immobilization. It is as true

- now as when VELPEAU taught it, that "compression is the sovereign resolvent in contusions with infiltration and swelling."

While cooling and discutient lotions have been generally used, Mr. ASTON KEY recommended *hot* applications, the directions for which are given as follows, by Mr. JOHN GORHAM (*Lancet*, July, 1876): For a sprained ankle, take a piece of lint of such size that, when folded thrice, it shall be four inches wide and twenty inches long—sufficiently wide and long, in other words, to completely envelop the joint; let this be soaked in boiling water, squeezed out gently, and applied to the limb. Next, take a piece of thin gutta-percha shaving or oiled silk, two inches wider than the folded lint, on which it is laid, with a margin an inch wide above and below, which lies in contact with the skin and prevents evaporation. Lastly, over the whole apply a bandage, and tie the limb on a pillow with two pieces of tape.

PROF. JAMES SYME, F. R. S. E.

The means that afford most relief from the pain directly caused by the injury, consist in the application of *hot fomentations* (see page 67) and the preservation of perfect rest. The ecchymosis is often considered a warrant for leeching or cupping; but the effused blood cannot be withdrawn in either of these ways, and must be removed by absorption. If symptoms of inflammation come on, blood must be extracted freely, and the other means against inflammation of the joint be employed. After the injured part has ceased to be painful on pressure and motion, and remains merely swollen and stiff, it ought to be supported by a bandage, and have some stimulating ointment or lotion applied to promote absorption. Blistering, warm pumping, the vapor-bath, friction and gentle, but frequently repeated exercise, are useful at the same time and with the same view.

DR. RICHARD O. COWLING, OF KENTUCKY.

The safest treatment of sprained ankle is by immobilization. The first thing to be done is to elevate the limb upon a pillow; next to bathe the feet and joint in *hot* water, which will generally be found more effectual than cold. It should be as hot as is at all tolerable to the patient, and should be poured upon the ankle while the foot is still elevated and extended over the foot of the bed. During this affusion, which should be steadily continued for half an hour, the foot and ankle are to be gently stroked upward, increasing the

pressure as it can be endured, and the joint moved carefully. It is more than probable that the patient will shrink from this portion of the treatment, but a speedy relief from his pain generally reassures him as to its efficiency.

Comparative ease having been established by this means, immobilization of the joint is best secured by the many-tailed or strip bandage covered by a roller. The strips made of muslin are wet and applied from the roots of the toes to a point eight or nine inches above the ankle. These are covered with a flannel roller carried well up the knee.

The patient thus rendered comfortable may be left, with direction to take an opiate if he is nervous and sleepless, and to remove the bandage if this from any cause induces or aggravates the pain. After four or five days the bandages may be removed and replaced with a plastic apparatus.

SYNOVITIS (ARTHRITIS.)

MR. RICHARD BARWELL, F. R. C. S., LONDON.

In the chronic strumous synovitis, the so-called "white swelling" of the knee-joint, this author (*British Medical Journal*, October, 1874.) believes in the stimulating treatment by means of iodine injections:

988. R. Tincturæ iodinii,
Aquæ destillatæ,

f. $\frac{3}{4}$ ss
f. $\frac{3}{4}$ j. M.

This method of using the drug is simple: a syringe with a very fine needle should be used, and care must be taken not to inject into the cavity of the joint, but into the thickness of the morbid tissue. Injection must not be employed when any active inflammatory process is going on; the temperature of the joint must be not at all higher, or but a portion of a degree higher, than that of the other side. There must be either no pain, or only that dull aching which is rather a sign of fullness of veins than of arterial hyperæmia. Starting of the limb, the symptom above all others which shows that the cancellous structure next the articular lamella is inflamed, shows also that the time for this treatment has passed by, unless such starting be only occasional, and not severe.

When, in any case, all the favorable conditions are present, he punctures the skin in the softest and most prominent parts of the tumefaction, making from two to four punctures, as the case may demand or permit; into each of these punctures he injects about five minims of the fluid, withdrawing the needle a little as the piston descends. An elastic bandage is applied after the operation.

DR. C. FITZHENRY CAMPBELL, OF SACKVILLE, N. B.

Our author, referring to the practice of Dr. MORITZ, of Coblenz (*Medinische Zeitung*, No. 26, 1872), of employing nitrate of silver, either in solution (ten grains to the fluid ounce) or in substance, as a local application in cases of articular effusions, whether resulting from gout, rheumatism, scrofula or wounds, says that for more than twenty years past, he has been in the habit of applying a solution of this salt (three to eight grains to the fluid ounce) to almost all painful swellings of the joints, whether resulting from blood disease or mechanical injury, with the happiest results. (*The Lancet*, July 1st, 1871.)

DR. P. J. MANEC, OF PARIS.

989. R.	Ammonii chloridi, Aquæ (or vini rubri),	3 ijss Oj.	M.
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Compresses, immersed in this solution, are to be applied to the knee, in recent cases.

The articulation is to be moderately compressed, and the bandages kept moist with the solution. Afterwards, recourse is had to flying blisters, if necessary.

DR. METZGER, OF BONN.

The treatment of both acute and chronic synovitis, except that at the hip-joint, is treated by this practitioner with *massage*. The operator sits in front of his patient on a low stool, and the part to be operated on is first shaved and anointed with perfumed lard. The frictions used are divided into two classes: the first, passing from side to side (horizontal frictions); the second, passing from below upward in the line of the limb (vertical frictions). The applications vary in force, according to the effect which he desires to produce, and are made, not only upon the joint itself, but also upon the adjacent unaffected tissues. By means of the *horizontal frictions* the skin is moved about over the fasciæ and ligaments, and the superficial vessels are acted upon, partly by the direct application of mechan-

ical force, and partly by the indirect influence of the vaso-motor nerves. The circulation of the blood is thereby increased; and where there is a tendency to venous stagnation, the bluish color is removed, and the skin assumes its natural appearance. The *vertical frictions* are made in the direction of the circulation of fluid in the venous and lymphatic vessels, and promote the flow within them. By a combination of these two methods of manipulation, the one stimulating the action, and the other propelling the contents of the blood-vessels and lymphatics, absorption is necessarily increased.

The operator rubs strongly whenever indurations, infiltrations, or effusions are to be dealt with, and follows from below upward the course of the lymphatic vessels in the extremities. When, for instance, the knee-joint is the subject of treatment, he works across the joint with the fingers of one hand, on both sides, below the patella, pressing inward with more or less force; while the fingers of the other hand work in the same manner, upward along both sides of the patella, over the capsular ligament, or any ligament which is felt to be swollen. This process is continued from three to five minutes. He then grasps the joint with his right hand, and, pressing firmly, rubs upward over the patella, as high as the superior insertion of the investing ligaments. This is repeated a number of times, varying according to the circumstances of the case. The applications are repeated once or twice every day.

PROFESSOR JAMES SYME, F. R. C. S. E.*

This eminent author urges very forcibly the claims of the *actual cautery*, in a condition of articular disease characterized by very distinct features dependent upon ulceration of the cartilages.

These features are—intense pain, aggravated by pressure or motion, and most severe during the night, not confined to the joint affected, and being generally also referred to the one beyond it, or a more distant part of the limb, which is weakened in its muscular power, disposed to œdematous effusion, and altered in its sensations, being usually hotter or colder than natural, and occasionally feeling as if benumbed. These symptoms may exist for weeks or months with little alteration except in regard to their degree of severity; but if the derangement from which they proceed be allowed to pursue its course without interruption, are almost sure, sooner or later, to terminate in ankylosis or suppuration, with caries of the bone

**Surgical Works*, Philadelphia, 1866.

affected. It is in this case that the actual cautery, if properly applied, before suppuration has taken place, may be regarded very nearly, if not absolutely, a certain remedy.

The cautery should be heated to the utmost degree producible by a common fire, and be in size not less than a pigeon's egg, in order to retain its temperature sufficiently. A common poker will answer in case of an emergency. The eschar may in general be about two inches in length, and should be made on each of the two sides where the articulation is nearest the surface. The pain is much less than might be anticipated, and may be readily prevented by chloroform, which for this purpose need not be employed to its full effect, since the early stage of unconsciousness will protect the patient from any unpleasant recollections of the procedure. A poultice should be applied until suppuration is established, and then some unctuous application, unless it is desired to check or stop the discharge, when the water-dressing may be substituted.

DR. THEODOR BILLROTH.

With regard to the treatment of that form of chronic synovitis called tumor albus, or white swelling (fungous and suppurative articular inflammation), our author states that the general treatment should be more prominent, the more chronic and insidious the disease. Of course, it should be directed against any dyscrasia which can be detected.

The local treatment is the more effective the more acute the stage. Painting the part with tincture of iodine, flying blisters, wet compresses, gentle compression with adhesive plaster, are all valuable. Or the part may be rubbed with a strong salve of nitrate of silver:

990. R. Argenti nitratis,
Adipis,

$\frac{3j}{3j}$. M.

For an unguent.

These measures should be accompanied by *absolute rest* of the joint.

If the course of the disease is entirely chronic, and does not yield to these remedies, then we must have recourse to the maintenance of continued moderate pressure on the swollen limb by means of a firm bandage, such as a plaster splint, which, at the same time, keeps the joint perfectly quiet in a suitable position. Before applying the

plaster dressing, we may rub the limb with mercurial ointment, or apply mercurial plaster, or even rub in the above-mentioned nitrate of silver ointment. When fistulæ have formed, we may still use the plaster splint, simply slitting it up and putting in new wadding; or one can use splints with openings made opposite the fistulæ.

The old methods by the antiphlogistic treatment and cataplasms, still employed by some, should be discarded. Amputation of the thigh, for white swelling of the knee, should now hardly ever be required; this is to be attributed, more than anything else, to the treatment of the disease by *the plaster bandage*, as above described, a plan chiefly introduced, and persistently carried out, by Professor VON LANGENBECK.

In some subacute cases, *cold* is an excellent application. ESMARCH claims very favorable results for persevering treatment with *ice*, applied by a bladder on the knee, continued for a long time.

The persistent application of *heat*, accompanied by the careful application of cataplasms, compresses wet with warm water, or warm baths, is indicated when the course of the disease is exceedingly torpid, when bad-looking, fistulous ulcers, deficient vascularity of the granulation, or bad, thin secretion, seem to indicate a moderate irritation of some kind. However, when high temperatures are applied, they should not act too long, or their effect will be lost, and there will be complete relaxation of the parts, instead of the fluxion it was proposed to excite.

JAMES E. GARRETSON, M. D., D. D. S.

Acute synovitis, if disassociated with cachexia, may commonly be quickly resolved into a subacute condition. If purely local, the attention required will be one vigorously antiphlogistic. A cure, almost magical in the rapidity with which it results, is sometimes secured by cauterizing the surface with the solid *nitrate of silver*. When cachexia is present, local sedation must be combined with constitutional specific medication.

A common treatment for an acutely-inflamed joint might be laid down as follows:

Put the feet and legs in water as hot as can be borne; administer a full saline cathartic or a diuretic; apply a lead-water and laudanum lotion to the inflamed part; bleed with the lancet, or locally, with leeches; depress the circulatory force by the administration of

arterial sedatives, and restrict to a low diet; use counter-irritants; any or all of these means being employed, according to the indications of the case, an exception to the use of the pediluvium existing in inflammation of the inferior joints.

The inflammation, having its acuteness thus broken, is often brought to a happy termination by painting the joint with the tincture of iodine, or with diluted Monsel's solution of the persulphate of iron; and, afterwards, if necessary, enveloping the parts in a lead-and-laudanum lotion.

Where structural change is feared as the result of effusions, mercurials may be administered and pushed to the least perceptible evidence of their impression.

When, in defiance of treatment, suppuration occurs in a joint, the pus formed is to be got clear of as speedily as possible. To effect this, it is, perhaps, not possible to adopt a better plan than the subcutaneous valvular puncture, to be made by using a delicate tenotome. At this stage, we may also resort to direct stimulation, with prospects of good results; stimulating embrocations, hot and cold douches, strapping, painting, passive motion, or even injections into the joint itself, may save the articulation when other means fail.

Prof. GUBLER employed ten parts of iodoform to twenty of sulphuric ether and twenty of alcohol. When dissolved, the liniment should be applied to the diseased joint, by means of a pencil. The parts should then be covered with a piece of oiled silk. For the same affection, Dr. COTTLE dissolves iodoform in chloroform.

WOUNDS OF THE HEAD.

Mr. JONATHAN HUTCHINSON has stated his belief that "depression of the bone is rarely the cause of symptoms of compression;" and in enumerating the injuries of the skull and their treatment by trephining, Dr. A. H. CORLEY, of Dublin, makes the following distinction. (*Dublin Journal of Medicine*, 1874):

1. *Simple Fissure*.—For this fracture, the operation should never be performed. True, that, accompanying the injury, there *might* be localized extravasation of blood; or, subsequent to and consequent on it, there might be formation of matter, which may require the application of the trephine; but the operation then has no reference to the fracture.

2. *Simple Comminuted Fracture*.—A fracture may be simple externally, but the inner table may be more extensively fractured, and fragments may wound the dura mater or brain. This condition cannot be guessed at until symptoms of intra-cranial mischief arise; for them, and not for the fracture, we may trephine.

3. *Depressed Fracture*.—He makes no distinction between simple, depressed and compound fracture, as to operative treatment. The latter is more liable to be followed by intra-cranial mischief. As long as no symptoms are present, or, *if present, until we have tried all other means of removing them*, we should not operate. If obliged to interfere, we do so with little hope, as the symptoms are most likely to own an origin other than the depressed bone.

4. *Depressed Fracture, Comminuted*, including that which is known as "punctured" fracture, such as may be produced by the stab of a pointed weapon, kick of a horse or blow of a sharp stone. In many cases of this description, it may be necessary to operate at once, *whether symptoms be present or not*. If the surgeon has reason to believe that, in a punctured fracture, spiculæ of bone are impinging on the surface of the brain and lacerating it, he is bound to interfere at once.

The treatment of *punctured fractures* here advocated is still more strongly urged by Mr. DAVIES COLLEY, in *Guy's Hospital Reports*, 1877. He lays it down as an imperative rule in such wounds to *trephine at once*, without waiting for symptoms of irritation or compression.

PROF. D. HAYES AGNEW, OF PHILADELPHIA,*

recommends, as general rules in wounds of the head, to employ stimulants cautiously until the danger of collapse has passed; then ice to the head, veratrum viride, perhaps general bleeding, to deter excessive reaction. The diet at first should be restricted. He adds: "The importance of the use of mercury as an antiphlogistic cannot be overrated, and it should be given in all cases where, from the severity of the injury, there is reason to fear inflammatory sequences."

PROF. C. B. NANCREDE, OF ANN ARBOR, MICH.

Prof. NANCREDE, in his valuable article upon injuries of the head in the *International Encyclopædia of Surgery*, states that the surgeon's main duty should be directed not to the broken skull, but to

* *Treatise on Surgery*, Vol. I., 1878.

the injured brain. A certain amount of injury occurs at the time of the accident to the brain, and the presence of spicula of bone from the fractured skull frets the organs or its membranes, and encephalitis is thus inevitably aroused. Where such a state of affairs is present, the only way of treatment is operative, to the removal of the offending fragments and raising any marked depression. In many of these cases perhaps the patient dies, the trephining and elevation of depressed bone failing not because of their lack of value, but because they could not repair the lacerated brain and meninges. In some cases, a goodly number, too, however, the removal of all these sources of irritation constitutes the necessary element for successful treatment.

Fissures of the skull, simple or compound, do not call for surgical interference unless symptoms of compression from extravasated blood or intracranial suppuration (abscess) call for operation.

In all cases of depressed fractures, where the depression is at all marked, the bone should be elevated, and that at once, not waiting for symptoms of trouble to arise, as then but little service can really result.

Prof. NANCREDE makes the point that whenever, in whatever form of fracture, there is reason to suspect cerebral irritation from splinters of bone, to prevent secondary inflammation and brain disease he would operate at once, especially in comminuted and badly depressed fractures. In slight fractures, with no symptoms of irritation, with little or no comminution or depression, he would rely upon general treatment.

In fractures of the base of the skull, unless in the neighborhood of the orbit, where operative measures might be applied, no treatment beyond absolute quiet, and applications of cold to the head and other antiphlogistic measures to prevent the occurrence of encephalitis, is to be undertaken.

In cases of *concussion of the brain*, warmth should be applied along the spine, in the stage of collapse, and to the feet, and mustard plasters should be applied over the epigastrium. Stimulants should be resorted to as little as possible, except in impending death, when they may be cautiously administered. Of this class Dr. NANCREDE prefers hot coffee, then carbonate of ammonium, and lastly alcoholics. Whiskey or ether may be injected subcutaneously if the patient cannot swallow.

Reaction within moderate limits should not be interfered with. Perfect quiet of mind and body should be insisted upon. Ice or

other cold applications should be made to the head, which, in serious cases, should be shaved. A mercurial, followed by a saline purge, should be given, and repeated when necessary. Light food, as milk and lime water, should alone be given, or but water, for the first forty-eight hours, unless there has been serious hemorrhage. Bleeding is rarely indicated in the reactive stage.

At a later period, if there be delirium, fever, flushed face in a robust patient, venesection will prove beneficial. Bromide of potassium or deodorized laudanum in repeated small doses is useful for excessive restlessness or wakefulness. The recumbent posture, changed gradually for the upright by means of pillows or a bed-rest, should be enforced for at least ten days or two weeks after apparent convalescence has set in.

Where *contusion of the brain* has taken place, all the efforts of the surgeon should be made by means of available antiphlogistic means to prevent the occurrence of enccephalitis, as by application of ice to the head, mustard plasters to the abdomen and feet, mercurial purgation, etc.

In *compression of the brain*, the first duty is of course to relieve this compression by operative measures, and until that has been done, no other treatment is of value. Prof. NANCREDE advises that efforts to resuscitate patients who have ceased to breathe from compression be attempted by artificial respiration, hypodermic use of atropine and electrical stimulation of the diaphragm.

DR. G. H. MACLEOD, OF GLASGOW,

Professor of Clinical Surgery in the University, urges strongly the avoidance of active interference in wounds of the head, especially in children. He teaches that the simpler the treatment of these cases the better. Active interference is most injurious. The softness of the bones, their elastic connection, and the more free expansion allowed the brain in young children, save them from much of the risk run by adults. Even in cases of severe fracture, with depression, non-interference is the best procedure. The absence of the sinuses and of diploe allows of the brain being easily reached by a blow; but still, if time is only given (supposing always that fragments are not actually driven into the brain), he unhesitatingly believes that these young patients have a much better chance by being let alone than from any operation. In a patient aged twelve, a considerable part of the left parietal bone was wholly removed by the

blow from a cart-tram falling on him. The brain was freely exposed, yet by simple treatment and non-interference—beyond guarding him against sources of irritation, and attention to his general health—he made a perfect and uninterrupted recovery.

DR. DAVID W. YANDELL, OF LOUISVILLE.

This surgeon has called attention to the value of *bromide of potassium* in injuries to the brain. (*Louisville Medical News*, July, 1876.) It should be given in full doses (5j) when symptoms of compression arise, especially when secondary to injuries of the head. He believes that its judicious and regular use will not unfrequently obviate the necessity of resorting to the trephine.

LESIONS OF THE SPINE.

No inconsiderable advance has been gained in the surgery of the spine, both acute and chronic, in the matter of operative surgery and in the application of fixation and supporting apparatus. For these, however, the reader is referred to systematic works upon operative surgery. Particularly in the chronic forms of spinal lesions, in spinal caries often of tubercular origin, has the employment of various appliances, as the jackets devised by Prof. L. E. SAYRE, of New York, given rise to marked benefit to these sufferers, and prolonged the lives of those who seemed doomed to early death, or saved from deformity those whose only hope promised life with unsightliness.

SPINA BIFIDA.

DR. BRAINARD, OF CHICAGO.

The use of injections for the cure of spina bifida, was first suggested by this writer, in 1848. His prescription is:

991. R.	Iodinii,	gr. $\frac{1}{4}$ -v	
	Potassii iodidi,	gr. $\frac{1}{4}$ -xv	
	Aquæ destil.,	f. $\frac{3}{4}$ j.	M.

Half a drachm at one injection.

The rules for its use are:

1. Make the puncture subcutaneously in the sound skin, by the side of the tumor.

2. Draw off no more serum than the quantity of fluid to be injected.

3. Apply pressure during the operation, so that none of the solution enters the spinal canal.

4. If symptoms of irritation appear, draw off all the contents of the sac, and replace them with distilled water.

After the operation the patient should lie on his side; and, if there is much heat, warm evaporating lotions to the part are required. As soon as the tumor becomes flaccid, it should be covered with collodion or supported by pressure. The injection should be repeated as often as necessary, care being taken that previous irritation has completely subsided.

MR. EDWARD ATKINSON, M. R. C. P., OF LEEDS.

This surgeon has recently reported a case of an unpromising character, cured by the *clastic ligature*. (*British Medical Journal*, May, 1875.) The tumor was in the cervical region, and about the size of a tennis ball. The child was nine weeks old. Having passed a fine elastic ligature four times tightly round the pedicle, he enveloped the tumor in cotton-wool. All the first night the child was restless, crying, and vomiting the breast-milk. Still it sucked, though the milk was rejected directly. A few drops of brandy in a spoonful of warm water, given several times, checked the sickness, and thenceforth it began to thrive. The surface of the tumor soon became vesicated, and the fluid contents oozed away, reducing the bulk. On the fourth day the sac was sloughing. The ligature was partially unwound and tightened up. On the sixth day the pedicle separated, when no hole was visible, nor any oozing of cerebro-spinal fluid from the stump. The sac was examined and found to be a true meningocele. The wound rapidly healed, and the child gained in weight daily, and was discharged at the end of the fortnight. When last seen, there was scarcely any scar to be seen, and very slight deficiency in the bones could be felt. The child was plump and healthy.

PROFESSOR JAMES MORTON, M. D., OF GLASGOW.*

This writer, who is Professor of Clinical Surgery at Glasgow, holds, with the majority of surgeons, that injection is the most promising mode of arriving at the radical cure of spina bifida, and,

* *The Treatment of Spina Bifida by a New Method*, Glasgow, 1877.

in accord with VELPEAU and with BRAINARD, of Chicago, regards *iodine* as the most suitable active agent for the injected fluid. Novelty, however, is claimed for his method, as he uses as an injection, not a simple solution of iodine or a combination of iodine and iodide of potassium, but a fluid called *iodo-glycerine solution*, as follows:

992.	R.	Iodini,	gr. x	
		Potassii iodidi,	gr. xxx	
		Glycerini,	f. $\frac{3}{4}$ j.	M.

So named from its components, which are, as stated above, a combination of iodine with glycerine. It was thought that, as this fluid is less diffusible than either a spirituous or watery solution, it will be found less likely to permeate the cerebro-spinal fluid with rapidity, and so to cause shock or bring on convulsions. The injection of the iodo-glycerine solution, in order to be successful, must be practised under certain precautions, the most important of which is the prevention of the continuous loss of the subarachnoid or cerebro-spinal fluid.

The results of this method, as shown by the reports of fifteen cases treated by the author and by other surgeons, appear to be most satisfactory, and certainly far surpass those obtained by any previous plan of treatment. Of the seven cases treated by BRAINARD, before the publication of his paper in 1861, in three only was there a permanent and complete recovery. Dr. MORTON states that of the fifteen cases treated by this method, twelve were successful and three fatal, and that all his own lumbar cases have, hitherto, been fortunate. In the operative treatment of spina bifida some care must, of course, be taken in the selection of cases. Some cases, as the author points out, are so complicated by other defects, as paralysis, hydrocephalus, etc., as to be hopeless. In subjects who have no paralysis, and no deformity of importance, and who, apart from the presence of the tumor constituting a spina bifida, ought to be sound, this new method of treatment may be undertaken, in lumbar cases at least, with very little fear of an unfavorable result.

XVII. LESIONS OF THE ORGANS OF SPECIAL SENSE.

THE NOSE.—*General Therapeutics of Nasal Diseases—Epistaxis—Nasal Duct, Obstruction of—Naso-Pharyngitis (See Vol. I)—Ozæna—Polyps—Rhinitis.*

THE EYE.—*Amaurosis—Blepharitis—Conjunctival Diseases—Corneal Diseases (Keratitis, Ulcers, Opacity)—Iritis—Styes (Hordeolum)—Wounds and Injuries of the Eye.*

THE EAR.—*Eczema of the Auricle—Otitis—Otorrhœa—Polyps—Tinnitus Aurium.*

THE LARYNX.—*(For Inflammatory Affections of Larynx, see Vol. I.)—Intra-laryngeal Growths.*

GENERAL THERAPEUTICS OF NASAL DISEASES.

THE USE OF THE NASAL DOUCHE.

The use of the nasal douche has met with severe condemnation from Dr. D. B. ST. JOHN ROOSA, of New York, and he has detailed a number of cases in which its employment has entailed unfortunate results, even in skillful hands. Nevertheless, other specialists have by no means consented to banish it from practice.

DR. JAMES PATTERSON CASSELIS, M. R. C. S.,

Has, since ROOSA's paper, defined more clearly the proper mode of using it. (*Dublin Journal of Medical Science*, 1877.) He says:

"I never use it except in appropriate cases; never trust the use of the syphon douche to the patient, but in every case do the operation upon the individual myself; self-use in this, as in many similar circumstances, mostly means self-abuse. After deciding that the case is one in which the douche is admissible, I observe the following precautions, which, I may add, are applicable to the various modifications of the process. To have the fluid to be used non-irritating—of a density greater than the serum of the blood—about 90° Fah. in temperature, and *never to use pure water alone*. To give the column of fluid a fall from a point about one foot above the level

of the patient's nose, patient meanwhile leaning forward and breathing short, rapid breaths, about forty per minute, interrupting the flow of the fluid every few seconds to allow of the patient resting, and to permit of the nostrils being sniffed out from behind by a succession of violent expirations through the nostrils, *the mouth being closed*, stopping the fluid from passing into the nostrils the instant that the patient ceases to breathe as I have directed, or on any involuntary act of swallowing taking place on the part of the patient; finally, in all cases, never to allow the patient to blow the nose after using the douche, till all the residual fluid has been expelled from the nasal passages by oft-repeated and strong expirations through them with the mouth closed. Lastly, never to begin the douche till the patient thoroughly comprehends the part that he or she is expected to perform in the course of the proceeding."

DR. CONSTANTINE PAUL, OF PARIS.

It is recommended by this writer (*Bulletin General de Therapeutique*, April, 1876,) that nasal irrigation should be practiced with the patient in the upright position, and the head bent forward, the nostrils occupying the lowest portion of the nasal form. The best apparatus is the original one of H. WEBER. It consists of a caoutchouc tube, a yard and a half in length, the nasal extremity having an "ampulla" of horn or glass, which fits into the nostril; at the other end is a U-shaped tube of some solid material for convenience of insertion into the solution. A special apparatus is not, however, necessary, as an ordinary bone enema-pipe, around which linen may be wrapped to give it sufficient volume, so as to fill up the nostril, can be easily adapted to the tube of an irrigator. In such case M. PAUL advises that the tap of the irrigator should be at "half cock." The affections in which he has especially employed these irrigators are ozæna, lupus of the nose, chronic rhinitis, nasal eczema and acute coryza. He has successfully used the following:

993. R. Sodii hyposulphitis,
Aq.æ,

gr. xxv
f. $\frac{3}{4}$ j. M.

And,

994. R. Chloral hydratis,
Aq.æ,

gr. xv
f. $\frac{3}{4}$ j. M.

ATOMIZERS, INSUFFLATORS, ETC.

Of other appliances for cleansing the nasal cavity brief notice may be paid the atomizer. In its varied forms it is employed not only for this purpose, but also to convey to the diseased nasal membrane various medicants held in solution in the fluid in the atomizing bottle. Where the spray is intended for cleansing purposes it should be rather coarse. The tubes sold in the shops under the name of SASS' tubes answer all purposes ordinarily, and can be used either anteriorly or posteriorly. Special forms of atomizing tubes and nozzles are required for cases in which malformation or deformity from disease cause difficulty in insertion.

When it is desired to apply medicaments in small quantities directly to the diseased spot, the brush or cotton pledget answers all purposes.

Insufflators are instruments that have been devised for the purpose of applying powders to the nasal membranes. They usually consist of a tube of rubber, metal or glass, of the shape of an atomizer tube, but with large opening. In this tube, by some appliance, the powder is placed, the tube is inserted, and the mouth directed toward the diseased membrane. Now by means of some blowing arrangement, as a bulb, attached to the external end of the powder tube, the powder is blown upon the membrane.

Inhalers are also to be included in the apparatus for applying medicaments to the nasal mucous membranes, an apparatus for this purpose being of such obvious parts as to render description unnecessary.

ON NASAL BOUGIES.

At one time the treatment of nasal diseases was confined to injections of tepid water and solutions of different drugs, and applications of caustic to the nasal mucous membranes by means of *porte-caustique*, the latter of which methods causes intense pain when the mucous membrane is swollen and the meatus is narrow. Moreover, cauterizations cannot be employed sufficiently often.

For these reasons *nasal bougies* were introduced. They are made of *gelatine*, and medicated commonly with alum, sulphate of copper, rhatany, carbolic acid, etc. Their use has been attended with great success. They are a little over three inches in length, and from one-eighth to one-quarter of an inch in diameter, pointed at one end, so as to be more easily introduced. Their introduction is not at all

painful; the elastic body adapts itself to every irregularity in the nasal cavity, passes very easily through the narrowest parts of the meatus, and dilates them by gentle pressure. These bougies have been used in cases of *coryza* and *ozæna*, and with great success in cases of extensive swelling of the nasal mucous membrane and of the turbinated bones. If there is total obstruction of the meatus, and air cannot be drawn through the nostril, the introduction of the first bougie often effects great improvement. In cases of *ozæna*, sulphate of copper and carbolic acid are the most useful agents; but where there are extensive swelling and relaxation of the mucous membrane, the tincture of rhatany is to be recommended. Sulphate of zinc is not much used, for, according to Störk's experiments, solutions of this drug, when they are only injected into the nose, destroy the power of smell. There is no difficulty in introducing the bougie; it is advisable to give it a rotatory as well as an onward motion during introduction. Even in the most obstructed meatus, it is possible to introduce the bougie completely and in any direction; afterward the nostril is plugged with lint to prevent the liquefied gelatine escaping by any other oriñce than the posterior nares. When there is much secretion present, the gelatine may liquefy in three-quarters of an hour, but it usually takes three hours. It causes no unpleasant sensation while in the nose, and it is useful, not only in applying medicaments to the mucous membrane, but in keeping the meatus dilated.

THERAPEUTICS OF THE NASAL CAVITIES.

DR. CHARLES E. SAJOUS, OF PHILADELPHIA.

In his recent work upon the *Diseases of the Nose and Throat*, this eminent authority arranges the following list of remedies for use in the ordinary class of cases presenting before the rhinologist. The first essential of treatment is cleanliness, this alone in many cases sufficing to bring about a cure.

- In cleansing the nasal cavities, great care should be used in the selection of the proper instrument and solution. Where there is an inflammatory condition giving rise to hypertrophy, a comparatively powerful stream, as from the douche, would only stimulate the process, while in atrophic conditions this very stimulation would be a desideratum. In the former case the atomizer should be employed, the spray exerting no force on the surface to which it is applied. It simply softens the crusts and other matter to be removed, and these

must afterwards be blown out by the patient. Or a solution may be held up to the nose by the hand and the head thrown back so that the solution runs back into the mouth, and thence may be ejected.

As to the solution to be used, the nature of the affection again decides. Where there is much mucus, dependent simply on relaxation of the membrane, its mere mixture with an alkaline liquid will cause its dislodgment; but if the discharge is largely purulent, mucopurulent with crusts formed in the sinuosities, a solvent is required.

As such solvents in order named:

Aqua Calcis (pure), is slightly astringent and styptic; not irritating.

Sodii Bicarbonas (gr. iv, aquæ f. ʒj), acts as emollient, urges resolution of ulceration.

Sodii Boras (gr. iv—aquæ f. ʒj), acts as an antiseptic; slightly stimulating.

Ammonii Chloridum (gr. v—aquæ f. ʒj), stimulating, especially to glands.

Sodii Chloridum (gr. iv—aquæ f. ʒj), mildly stimulating and alterative.

Potassii Bromidum (gr. xv—aquæ f. ʒj), sedative and emollient.

Where the matter is offensive, and disinfection necessary, the following may be used:

Sodii Boras (gr. iv—aquæ f. ʒj), only where the fetor is slight.

Potassii Permanganas (gr. j—aquæ f. ʒj).

Sodii Salicylas (gr. v—aquæ f. ʒj).

Acidum Carbolicum (gr. j—aquæ f. ʒj).

Phénol-Sodique (℥ xv—aquæ f. ʒj).

As *astringents* Dr. SAJOUS arranges the following list. Astringents in their weaker solutions act simply as stimulants, in moderate strength as astringents, and in strong solution as irritants.

Argenti Nitras (gr. v—aquæ f. ʒj). Stimulant in weak solutions (gr. iii—v), sedative in strong (gr. lx—cxx). Indicated in ulcerative conditions; contraindicated in hypertrophy.

Plumbi Acetas (gr. v—aquæ f. ʒj), sedative. Indicated in acute and subacute catarrhs.

Zinci Sulphas (gr. v—aquæ f. ʒj), stimulating. Indicated in relaxed conditions of membrane, as from inhaling smoke.

Zinci Chloridum (gr. iii—aquæ f. ʒj), stimulating and antiseptic. Stronger than last named, used in same conditions, and where the discharges are becoming purulent.

Cupri Sulphas (gr. v—aquæ f.ḡj), stimulating and disinfectant. Indicated in chronic catarrh with fetid discharges.

Alum (gr. v—water f.ḡj), astringent, styptic. Indicated in engorged and relaxed membrane.

Tannic acid (gr. viij—water f.ḡj), powerful astringent and styptic. Indicated in all chronic conditions but atrophy.

Stimulants momentarily increase the normal functions of the membrane; used repeatedly the function becomes longer excited. They are usually used in conditions in which nutrition is impaired and degenerative or atrophic states are present, not when ulceration is present. They sometimes are useful in acute inflammation, by causing flow of serum and thus relieving the membrane. They may be classed:

Carbolic acid (gr. iij—water f.ḡj). Indicated in acute congestion and atrophy; is anæsthetic and disinfectant.

Iodine (gr. ij—glycerine f.ḡj) acts as does carbolic acid, but is stronger.

Nitrate of silver (gr. x—water f.ḡj). Indicated in atrophic conditions.

Chloride of ammonium, when formed from fumes of ammonia and muriatic acid.

Boric acid promotes healing of ulcers.

Cocaine hydrochlorate (gr. ij—water f.ḡj) acts on the vaso-motors, and blanches the part. Used in acute and chronic congestions, and where hypertrophies have occurred.

Besides these, inhalations of *creosote* (℥x), *oil of tar* (℥xx), *oil of cubebs* (℥xx), *oil of pine* (℥v), and *oil of eucalyptus* (℥x), each in Oss of water at temperatures of 120° or over, are to be used as stimulants.

As *alteratives* may be mentioned *Lugol's solution* (℥iij—water f.ḡj), *iodoform* and *calomel*, to be used where unhealthy discharges are present or hypertrophies are taking place.

As *sedatives*, used after severe operations, and in hyperæsthetic conditions and in allaying the frontal headaches of acute nasal affections, the following are mentioned by our author: Concentrated infusion of *erythroxylon coca*, *morphine* and *belladonna*. As *inhalants*, *benzoin* (ḡj), *conium juice* (f.ḡj), *chloroform* (℥xx) *fluid extract of hyoscyamus* (f.ḡss) and *dilute hydrocyanic acid* (℥iij), each in Oss of water, at a temperature of 115°–130° F., are recommended. As *protectives*, to prevent irritation from the passage of

air over inflamed and ulcerated surfaces, Dr. SAJOURS recommends *subnitrate of bismuth*, *lycopodium*, *pulverized talc*, and *starch*. As *escharotics*, in the removal of hypertrophies, etc., *nitric acid*, *chromic acid* and *glacial acetic acid* are mentioned. The addition of *cocaine* to nitric acid renders its application painless.

(For Coryza, see Vol. I, Respiratory Diseases.)

EPISTAXIS.

995. R. Ergotæ extracti fluidi, q. s.
 Twenty drops three times a day, in obstinate, recurrent epistaxis.
996. R. Olei terebinthinæ, gtt. xx-xxx.
 To be given *pro re nata*, in capsule, milk or emulsion.

This very valuable remedy for persistent or recurrent epistaxis rarely fails to cure the most obstinate cases.

997. R. Infusi digitalis, f. ℥ ij
 Tincturæ kramerizæ,
 Extracti fluidi ergotæ, āā f. ℥ j. M.
 A tablespoonful as required. Given twice a day, it will maintain a constant physiological effect. Recommended by Dr. BARTHOLOW.

Dr. BEVERLY ROBINSON (*Medical Record*, New York, March, 1876,) mentions a case where compression of the facial arteries proved successful in arresting epistaxis when styptics had proved ineffectual. These arteries were compressed upon the superior maxillary bones, just before they reach the alæ of the nose, by means of two small pads of lint.

THOMAS MCBRIDE (*Univ. Med. Mag.*, 1890,) mentions a case of very severe epistaxis in which, at the suggestion of the late Dr. D. HAYES AGNEW, several cylinders of ham-fat were passed back into the nose, checking the bleeding quickly and well. The case was one of hæmophilia.

A writer in the *British Medical Journal*, 1876, directs attention to the claims of *warm water*, applied externally to the face and nose in the treatment of that disease. It is not, perhaps, adapted for those severe cases where plugging the posterior nares is evidently and at first sight the only thing to be done; but it is, according to his ex-

perience (confirmed by that of his friends) the best remedy that can be applied for ordinary light cases.

998. R. Tincturæ ferri chloridi,
Aquæ,

f. ʒj
f. ʒiij. M.

For injecting into the nostrils with a syringe. Or a plug of lint soaked in it may be pushed up. Any of the other styptics, alum, persulphate of iron, etc., may be used in like manner.

NOTES ON REMEDIES.

Aconitum. Small and frequent doses often check epistaxis in children and plethoric people.

Alumen may be injected in solution, or the dry powder may be snuffed up.

Digitalis will often control epistaxis promptly. The infusion is said to be the best form in which to administer it.

Ergota is of very positive value. If the case is urgent it may be given hypodermically, gr. ij-v. Otherwise the fluid extract by the mouth is sufficient. (F. 995.)

Ferrum. Various preparations of iron are useful. *Iron spray*, of a weak solution of the *liquor ferri subsulphatis* f.ʒj to aquæ f.ʒviiij, is a very serviceable astringent in obstinate cases. The nozzle of the tube should be inserted just within the nares, and the spray be driven with considerable force. Or it may be introduced on a feather. The *tannate of iron* may be given internally; and to correct the condition of anæmia which follows, nothing is better than the tincture of the chloride with quinine.

Galla. Powdered galls taken freely, gr. x-xx, is an excellent astringent in cachectic subjects.

Hamamelis has been found very serviceable in epistaxis (ʒj-ij of the tincture every half hour).

Opium. Prof. GROSS recommends that Dover's powder in large doses should be prescribed when there is dryness of the skin.

Quinine. A writer in the *London Lancet*, 1878, says quinine is *the* remedy in epistaxis. He says that he has tried it more than twenty times, often in aged people, and has never found it to fail.

Sodii Sulphas. A teaspoonful of Glauber salts every half hour is recommended by German writers.

Tannicum Acidum. A solution of tannic acid ʒj, aquæ f.ʒvj, makes a good astringent injection or spray.

Terebinthinæ Oleum. A valuable remedy, not so well known as it should be. (See above.)

EXTERNAL MEASURES.

Blisters. In obstinate cases blisters applied to the nape of the neck are serviceable.

Cold. Pounded ice to the nape of the neck, or pieces of ice inserted into the nostrils or held against the roof of the mouth, often produce a happy effect. FERNEL recommends ice to the testicles or mammæ.

Cupping. Dry-cupping between the shoulders is useful in plethoric young people.

Heat. The spinal hot-water bag, applied to the cervical and upper dorsal vertebræ, is an excellent means. When the extremities are cold, hot mustard foot-baths should be resorted to.

Insufflation of astringent powders (alum, matico, tannin, etc.) is frequently useful.

Plugging. A piece of dry cotton may be introduced and left in the bleeding nostril ; or the cotton may be wet in an astringent solution previous to introduction. For plugging the posterior nares, the directions in surgical treatises should be consulted.

Position. In all cases the head and shoulders should be elevated. Raising the arms high above the head is a popular mode to stop nose-bleed.

Pressure on the facial artery, where it passes over the lower jaw, will often have the desired effect. For Dr. ROBINSON's plan, see above. Compression of the nostrils, with the patient's head bent forward, continued some time, will occasionally succeed. On a similar principle, a firm ligature around one or both thighs or arms will sometimes check the flow.

Transfusion. As a last resort, when deathly exhaustion is imminent, transfusion of blood is not only proper, but demanded.

Venesection, once often practiced in this complaint for its derivative effect, is rarely proper.

NASAL DUCT, OBSTRUCTION OF.

Obstruction and inflammation of the nasal duct, or dakryocystitis, is often due to temporary causes, mere congestion or œdema of the mucous lining being the most common, but plugging with inspissated mucus being also an occasional cause of the obstruction. Such cases may often be relieved by the simplest possible treatment, or get well spontaneously ; but if they have remained unrelieved or neglected, they may pass into the condition of permanent obstruc-

tions, and these will almost always require treatment by the use of instruments.

In less obstinate cases, much may be done by washing out the lachrymal sac and the duct with stimulating injections, painting the exterior with tincture of iodine to prevent abscess, and the employment by the nostrils of stimulant powders, such as scented snuffs. The obstructions not unfrequently arise from catarrhal, strumous or syphilitic affections of the Schneiderian membrane, to which conditions it is necessary to direct the general treatment.

Of injections, one may use:

999. R.	Cupri sulphatis, Aque,	gr. ij f. $\frac{3}{4}$ j.	M.
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Or,

1000. R.	Zinci sulphatis, Aque,	gr. j-ij f. $\frac{3}{4}$ j.	M.
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When the Schneiderian membrane is thickened and inflamed, Mr. W. SPENCER WATSON uses a mixture like the following, with an atomizer:

1001. R.	Acidi carbolic, Aque ammoniæ, Alcoholis,	gtt. v gtt. x f. $\frac{3}{4}$ j.	M.
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For atomization.

A carbolic acid solution of varying strength has been used by other surgeons, for injecting the duct by means of Anel's eye syringe. In a late article, Dr. G. STAMPINATI (*Mov. Med. Chir.*, March, 1876) refers to a number of cases, where treatment had been unsuccessful, but which were rapidly cured by the following method: A thirty per cent. solution of *persulphate of iron* was diluted with two parts of water, and this fluid injected by means of an Anel's syringe, into the sac. After remaining a few minutes, the fluid was aspirated with the same syringe. The injection may be made every day; and after repeating it about twenty times, a permanent cure is obtained.

POST-NASAL CATARRH.

(For the treatment of this condition, see Vol. I.)

OZÆNA.

JAMES E. GARRETSON, M. D., D. D. S.

Ozæna arises from various conditions, the nature of which must direct our treatment. The principal of these are as follows:

1. *Accumulation and Degeneration of the Common Antral Secretion.*—This is most frequently observed in the course of an ordinary coryza. It requires little treatment. The patient may be directed to sniff up the nostril of the affected side, some such combination as the following:

1002. R.	Ætheris sulphurici,	f. $\frac{3}{4}$ j	
	Tincturæ iodinii,	f. $\frac{3}{4}$ ij	
	Olei juniperi,	f. $\frac{3}{4}$ j.	M.
For insufflation.			

If this fails to check the discharge, then constitutional treatment, such as is called for, is indicated. A plethoric patient should have a dose or two of sulphate of magnesium, and a restricted diet; an anæmic patient should have a tonic regimen, with some iron and quinine internally.

2. *Fetid Discharges from Tooth Abscesses Opening into the Antrum.*—This form of ozæna is cured, as a rule, by extracting the decayed tooth. If this does not succeed, injections are to be made through the tooth alveolus. A good one to commence for a day or two with, is a solution of permanganate of potash, \mathfrak{ss} —j to aquæ, f. \mathfrak{v} iij, to control the fetor; this can be employed three times a day, after which one of the following can be employed:

1003. R.	Tincturæ iodinii,		
	Glycerini,	āā	f. $\frac{3}{4}$ j
	Acidi tannici,		\mathfrak{ss}
	Aquæ coloni,		f. $\frac{3}{4}$ j
	Aquæ destillatæ,		f. $\frac{3}{4}$ iij.
			M.

Or:

1004. R.	Tincturæ capsici compositæ,	f. $\frac{3}{4}$ ss	
	Aquæ rosæ,	f. $\frac{3}{4}$ viij.	M.

Or:

1005. R.	Argenti nitratis,	gr. xxx	
	Aquæ,	f. $\frac{3}{4}$ vj.	M.

Or:

1006. R.	Vini opii,	f. 3 j	
	Vini aromatici,	f. 3 j	
	Aquæ,	f. 3 vj.	M.

Of these the iodine generally acts most satisfactorily.

3. *Ulceration of the Mucous Membrane of the Antrum.*—This is quite rare unless some constitutional dyscrasia is present. This, of course, requires appropriate general treatment. The best local treatment is to extract a tooth, and make an entrance into the antrum through its alveolus with any pointed instrument—a simple and easy operation. This done, the opening is to be kept patulous by introducing a tent of cotton or sponge. As an injection to be thrown through the opening, the following may be employed:

1007. R.	Acidi carbolic,	gtt. xx	
	Acidi tannici,	gr. v	
	Glycerini,	f. 3 ss	
	Aquæ,	f. 3 vj.	M.

For an injection.

Or the following:

1008. R.	Alcoholis,	f. 3 j	
	Creosoti,	gtt. x	
	Aquæ,	f. 3 vj.	M.

Or the permanganate of potash, as suggested above. *Phenate of sodium* is also one of the very best injections in these cases.

When the constitutional taint is syphilitic, the patient must be placed upon anti-syphilitic remedies. Mercurial ulcers of the antrum are much more common than syphilitic ones. They demand *chlorate of potash* internally, gr. x four or five times a day. Scrofulous ulcers are also frequent.

These ulcers are also often located in the nares, especially syphilitic ones. They are often accompanied by nasal osteitis, frequently ending in necrosis, especially of the vomer.

When the nasal bones are thus affected, the overlying skin is congested; pressure on the bridge produces much pain, and lachrymal secretions often run over the cheek.

The treatment required is to limit and circumscribe the local inflammation as much as possible by the usual means, and to build up the system. An excellent application is the following:

1009. -R.	Tincturæ ferri chloridi,	f. ℥j	
	Quininæ sulphatis,	gr. xxv	
	Tincturæ iodinii,		
	Glycerini,	āā	f. ℥j
	Aquæ,		f. ℥iv. M.

Inject, or brush over and about the parts three times a day.

Iron or quinine will be needed internally. Iodide of potassium must be freely given. But a good diet, moderate exercise, judicious amounts of malt liquor, and systematic bathing, are the reliable means to enable the system to throw off the disease.

When the bone is necrosed, no attempts should be made to remove the sequestrum until the probe reveals it to be quite loose, when it may be lifted out.

4. *Foreign Bodies*.—Some of the most offensive and obstinate cases of ozæna arise from the lodgment and retention of foreign bodies. Pieces of sponge or cotton left behind in swabbing the nares, rhinoliths in the canals, peas, rags, buttons, etc., become sources of offence, resisting all medication and foiling the best attempts at cure until they are removed.

The patient should be placed in a strong light, and the parts searched with a delicate forceps: or he should be given a pinch of snuff, while his unobstructed nostril is compressed, so that the effort of sneezing may eject the obstruction. The employment of the rhinoscope is to be highly commended.

The rubber-bulb atomizer is an instrument of great service, which can be used by the patient without danger or trouble of any kind, and carries the spray to every part of the nostril. It may be charged with a solution of permanganate of potash or chlorine water, and kept about the person ready for use at any time. In cases which emit much fetor, its employment will avoid many moments of mortification.

PROF. S. D. GROSS, M. D.

1010. R.	Cupri sulphatis,	gr. $\frac{1}{4}$	
	Acidi tannici,	gr. iij	
	Aquæ,	f. ℥j.	M.

Use for a douche.

Dr. GROSS has employed the above for many years with signal benefit. If the fetor is marked, liquor sodæ chlorinatae may be added. In old and obstinate cases, a rapid cure may sometimes be effected by washing out the nostrils freely, twice a day, with the following:

1011. R. Zinci chloridi liquoris, gtt. x-xv
 Aquæ, f. ℥ viij. M.

It is a serious error in ozæna to use irritating lotions or unguents. The best plan is to begin with very weak applications, and increase their strength gradually. Whenever there is decided smarting and tension in the frontal sinus, the application is probably doing injury rather than benefit.

DR. EDWARD C. MANN, OF NEW YORK.

This physician commences by thoroughly cleansing the nasal cavities with the following:

1012. R. Sodii chloridi, ℥j
 Aquæ, Oj. M.
 Use with the douche.

He then applies thoroughly to the entire surface of the nasal cavity, the following:

1013. R. Argenti nitratis, ℥j
 Glycerini, f. ℥j. M.

Next he propels vapor of iodine into the nares for a quarter of an hour by means of a bulb and nasal tube. This is to be repeated daily. Meanwhile he prescribes the following snuff, to be used *ad libitum*:

1014. R. Pulv. camphoræ,
 Sacchari albi, partes equales.

When there is ulceration of the mucous membrane and caries of the bones of the nose, the following solution, applied over the affected part, is of great service:

1015. R. Iodinii, gr. ij
 Potassii iodidi, gr. xij
 Glycerini, f. ℥ ij. M.
 For local application. (*New York Medical Journal*, Oct., 1874.)

DR. DUBOIS, OF NEW YORK.

This writer states that ulcerations at the septum of the nose are frequently the cause of a persistent, fetid discharge from the nostrils. (*New York Medical Record*, April 21st, 1877.) Many of them can be, without difficulty, brought to a condition of partial cure; that is, to where they can control the discharge from the nostrils to such an

extent as not to be seriously inconvenienced thereby, It is a question, in some of these cases, as to the advisability of stopping suddenly a long-continued discharge. The treatment that he has found most convenient for the patient, and at the same time very effective locally, has been the use, night and morning, of the following :

1016. R. Vaselinae, ℥j
Acidi salicyli, gr. v. M.

This is introduced into the affected nostril by a camel's-hair pencil; or, better still, by a little cotton wool wound around the end of a stick. At the same time he gives $\frac{1}{100}$ — $\frac{1}{50}$ grain of corrosive sublimate, with some preparation of iron, twice daily. He frequently finds that, after this treatment has been continued for one or two months, a complete cure is effected; while in other cases the discharge has so far ceased after a few weeks, that the patient, being satisfied, leaves off the treatment.

For medicated douches :

1017. R. Sodii phosphatis, ℥ss
Aquæ destillatæ, f. ℥ viij. M.
Use to loosen the crusts and viscid secretion.

1018. R. Potassii permanganatis, ℥j
Aquæ destillatæ. Oj. M.
To correct the fetor.

Dr. WETZLER advises creosote, ℥j to cerate ℥j, applied to the inner membrane daily, with a camel's-hair brush.

DR. SOBRIER, OF FRANCE.

1019. R. Bismuthi subnitratæ, ℥ss
Sulphuris iodidi, ℥viij
Pulveris glycyrrhizæ, ℥j. M.
For a snuff in ozæna and chronic nasal catarrh. From ten to fifteen pinches a day should be used.

DR. BERNARD FRANKEL, OF BERLIN.

The *local* treatment of ozæna must be directed to the removal of the secretions, to the restoration of the membrane, and to the deodorization of the discharge. For the first we may use, either in the form of douche, injection or spray, such solutions as :

1020. R. Sodii chloridi, ℥j
Aquæ, Oj. M.

1021. R. Ammonii chloridi, gr. ij-x
Aquæ, f. 3 j. M.
1022. R. Sodii bicarbonatis, ℥ij-iiij.
Aquæ, Oj. M.

To restore the membrane to its normal condition, we must be governed by the etiological factor of the disease. In syphilitic rhinitis the following are useful applications :

1023. R. Hydrargyri chloridi corrosivi, gr. 1-1/2
Aquæ, f. 3 j. M.
To use as a douche.
1024. R. Hydrargyri chloridi corrosivi, gr. v-x
Aquæ, f. 3 j. M.
To be cautiously applied with a brush.

Dilute tincture of iodine and Lugol's solution are also applicable in some instances. TROUSSEAU recommended :

1025. R. Hydrarg. chlor. mitis, ℥ij
Hydrarg. oxidi rubri, gr. xv
Sacchari albi, 3 ss. M.
A pinch to be snuffed up five or six times a day.

In many cases no constitutional cause is discoverable. CAZENAVE has called attention to the value of *nitrate of silver*.

1026. R. Argenti nitratis, gr. x-xxx
Aquæ, 3 j. M.
Apply with a brush.
1027. R. Argenti nitratis, gr. xxv
Adipis, 3 j. M.
Use as an ointment to the nasal membrane.

As a snuff, some astringent, as tannin or alum, is commonly used, combined with powdered white sugar or magnesia, one part of the astringent to ten or fifteen of the vehicle. When there is hyperplasia of the membrane and stenosis of the nasal canal, caustic applications are indicated, as nitrate of silver in substance, tincture of iodine, or the galvano-cautery.

As deodorants, the usual disinfectants may be used, or the creosote ointment recommended by Dr. WETZLER :

1028. R. Creosoti, m_{xx}-l
Cerati simplicis, 3 j. M.
For an ointment.

Or one of the following snuffs, recommended by Dr. HEDENUS:

- | | | | | | |
|-------|----|--------------------|----|--------|----|
| 1029. | R. | Carbonis animalis, | 3j | | |
| | | Pulv. cinchonæ, | | āā | |
| | | Pulv. myrrhæ, | | Ḑj | |
| | | Pulv. caryophylli, | | gr. x. | M. |
| 1030. | R. | Carbonis ligni, | | āā | |
| | | Pulv. myrrhæ, | | ℥ ss. | M. |
- A pinch of either of the above to be taken every hour.

Astringents in this disease should be exhibited only when there is increased secretion and swelling; in the dry and atrophic forms they are contra-indicated.

DR. BERNARD KAUS, OF VIENNA.

The use of the solid stick of *nitrate of silver* is especially called for where ulcerations are present. It is best applied with the aid of the laryngoscopic mirror, the nitrate being fused on the end of a metal sound. A cardinal remedy is the *corrosive chloride of mercury*, although it has recently fallen into neglect; it may be used in a snuff with white sugar.

- | | | | | | |
|-------|----|-----------------------|----|--------|----|
| 1031. | R. | Bismuthi subnitratis, | 3j | | |
| | | Potassii sulphureti, | | gr. v | |
| | | Pulv. glycyrrhizæ, | | ℥ iss. | M. |
- For a snuff. Useful as a disinfectant.

DR. PROSSER JAMES, OF LONDON.

Of substances useful to wash out the nasal passages, the author had used, with fair results, *chloride of aluminium*; but, on the whole, prefers the *permanganates*. These promptly remove the fetor, which is the great distress of the patient. A weak solution should be freely employed at first, gradually increasing until there is a little smarting. Ulcerations and erosions should be touched with a strong solution or with a paste. Inhalation of *iodine* vapor is often of great value. When syphilis is believed to be the cause, *iodide of sodium*, in large doses, is called for. This contains more iodine than the potassic salt, and is not so apt to disturb the stomach. The *iodide of calcium* is also an excellent preparation.

NOTES ON REMEDIES.

Alumen. The nostrils may be well irrigated with a solution of ʒj to aquæ Oj.

Aluminium. The acetate of aluminium is more efficient in correcting fetor than simple alum. Dr. PROSSER JAMES prefers *chloralum*, the chloride of aluminium.

Ammonii Chloridum is used as a wash by Dr. FRANKEL. (F. 1021.)

Aqua Picis. The following is an injection extolled by M. DELIOUX DE SAVIGNAC :

1032. R.	Aquæ picis,	f. ℥ ij	
	Acidi carbolici crystal.,	gr. j.	M.

For a lotion.

Argenti Nitras. When ozæna depends upon ulcers in the posterior nares, these should be touched with nitrate of silver, or with a solution of the strength of a fifth or a tenth; or, the following ointment (Dr. MAURIAC, Paris) :

1033. R.	Argenti nitratis,	gr. x-xx	
	Aquæ destill.,	q. s. to dissolve.	
	Unguenti aquæ rosæ,	℥ j.	M.

For local use to ulcerations or fungosities.

Bismuth. TROUSSEAU employed equal parts of bismuth and powdered talc in chronic non-syphilitic ozæna, ordering the patient to clear well the nasal passages by blowing the nose, and then to snuff up some of the powder. It is advantageously combined with astringents, as :

1034. R.	Pulv. aluminis,		
	Acidi tannici,	āā	℥ j
	Bismuthi subnitratis,		℥ v
	Pulv. talc,		℥ x.

To be sniffed up several times a day. (Dr. MAURIAC.)

Brominium. The offensiveness of ozæna may be removed by inhaling through the nostrils a few drops of the following :

1035. R.	Brominii,	f. ℥ ss	
	Alcoholis,	f. ℥ iv.	M.

For inhalation. A small quantity to be placed in a wide-mouthed vial, and vaporized by the warmth of the hand. (BARTHOLOW.)

Camphora is used as an adjuvant to snuffs.

Carbolicum Acidum. A weak solution makes an excellent disinfectant injection. Dr. SAMUEL R. PERCY, of New York, recommends for injections for the nose :

1036. R.	Tinct. iodinii,	℥ xlv	
	Acid. carbolic.,	℥ vj	
	Glycerini,	f. ℥ j	
	Aquæ distillat.,	f. ℥ v.	M.

The proportion of carbolic acid may be increased.

Chloral. Injections of chloral, gr. v-xxx to aquæ f. ℥ j, have been successfully employed.

Cupri Sulphas is employed by Prof. GROSS. (F. 1010.)

Hydrargyrum. White or red precipitate, gr. j to white sugar ℥ j, was used

frequently in non-syphilitic ozæna with success, as a snuff, by TROUSSEAU. Weak solutions of the corrosive chloride are valuable in obstinate cases (see above), but must be used with great caution, as the Schneiderian membrane is very sensitive to this salt. Ointment of the nitrate has been well spoken of in the syphilitic form.

Hydrastis. It is said that five to ten drops of the fluid extract of hydrastis, taken internally, and the local application of a dilute solution of the same, have acted very favorably on the diseased membrane.

Iodine, in solution, is frequently used for inhalation.

Iodoform, either in powder or ointment, has been applied with advantage to the diseased surface.

Pix Liquida. This formula containing pix may be employed :

1037. R.	Sodii carb. cryst. pulv.,	gr. xvj	
	Picis liq.,	gtt. xvj	
	Aquæ,	f. ℥ iij.	M.

For an injection into the nares.

Potassii Permanganas. A solution of this, gr. j-℥j to aquæ f.℥j, makes a very useful wash.

Salicylicum Acidum. The plugging of the nasal cavity with *salicylated cotton* is adopted by Dr. GASTEIN, of Breslau. (*Allg. Med. Cent. Zeit.*, October, 1879.) The cotton is soaked in a solution of alcohol, glycerine and salicylic acid, and dried. The plugs are left in twenty-four hours.

Sodii Chloridum. In ordinary cases of non-syphilitic ozæna, hardly any substance renders better service than *common salt*, dissolved in water, or, what is better, *milk*, and employed in large quantities, one or several gallons at a time. The strength is about ℥j to Oj. It should be allowed to run freely through the nostrils by means of the douche.

Sodii Hypochloris. The repulsive odor of ozæna is happily neutralized by dilute solutions of hypochlorite of sodium.

Tannicum Acidum. In ozæna, both of syphilitic and non-syphilitic character, especially in children, tannin is of great service. The best preparation is the glycerite of tannin, with which the inside of the nose should be well brushed out, after the scabs and incrustations have been removed. The discharge ceases after a single application. (RINGER.)

DAVY recommends the following astringent injection :

1038. R.	Tannin,	gr. iss	
	Glycerini,	gtt. xxx	
	Aq. destillat.,		
	Aq. rosæ,	āā f. ℥ ss.	M.

Zinci Chloridum. In weak solution (gr. ij-vj to aquæ Oj) this is a valuable wash in ozæna. Some use it much stronger, but a very weak solution used in large quantities (one to two gallons) is better.

POLYPI.

Gelatinoid nasal polypi can frequently be removed by astringents, and thus spare the patient the shock of evulsion; or they may often be dispelled by injecting a few drops of solution of zinc chloride, renewed as often as the slough detaches. Mr. REGINALD HARRISON (*British Medical Journal*, Nov., 1879,) finds that if the ordinary mucous polypus be punctured, the fluid drains away and causes the growth to shrivel, a process much expedited by subsequently injecting carbolic acid and glycerine into the nostrils. Mr. A. G. MILLER (*Ibid.*, Dec.,) had previously applied rectified spirit in the form of spray to polypi with success, and thinks a preliminary puncture would greatly assist the action of the remedy.

Dr. REEDER proposed, in the *Chicago Medical Journal*, 1859, the local use of the *tincture of the chloride of iron*, and it has been successfully employed by many physicians. The formula is:

1039. R. Tinct. ferri chloridi,
Aquæ, partes equales. M.

About two drachms of this mixture is injected into the nostril, the head being held back so as to retain the fluid in contact with the polyp for a few seconds. The irritation of the nares caused by the dilute tincture is trifling in severity and of short duration. The application should be repeated daily for three or four days, which is usually sufficient to effect a cure.

Mr. THOMAS BRYANT, of London, has spoken highly (in the *Lancet*, Feb., 1867,) of the success he has attained by insufflating *tannin* in powder, by means of a quill inserted into the nostril. He employed about ten grains at a time, and repeated it daily for several months.

It has been recommended by Dr. SCHÖNFELD to supplement the local treatment by the internal administration of *iodide of lead*, gr. ij-iii twice or thrice daily.

DR. MORRELL MACKENZIE.

1040. R. Ferri perchloridi, 3j
Aquæ, q. s. to make a thick paste.

This author has found the best results from the use of this paste in getting rid of polypi. When they are small and easily reached it is generally successful.

The use of the *saffronized tincture of opium* was introduced by Dr. PRIMUS, of Babenhausen, as a local application. It is official in the German Pharmacopœia:

1041. R.	Opium,	16 parts.
	Saffron,	6 "
	Cloves,	1 "
	Cassia bark,	1 "
	Sherry wine,	152 "
Prepare by digestion.		

If the growth be painted several times a day with this liquid, in about a week or ten days the polypus, under favorable circumstances, becomes shriveled up, and falls from its attachments.

Bichromate of potash and nitrate of silver have also been tried frequently with more or less success.

Galvanic Caution.—Dr. THUDICHUM has removed polypi by this means, and although the proceeding is only practicable in a limited number of cases, and can never come into general use, the invention possesses advantages, and must occasionally prove extremely valuable. The polypus is encircled by a wire loop, which is made red-hot by being connected with a galvanic battery, and the substance of the growth can then be burnt straight through. The operation is attended with little pain, and there is no risk of hemorrhage, but as the wire can rarely be adjusted to the pedicle of the tumor, and as no traction is made which would be likely to draw away the polypus by its roots, the growth has generally to be removed in slices.

In the use of *bichromate of potash*, a saturated aqueous solution of the salt is applied by means of a small brush to the parts of the polypus within reach, care being taken to avoid the neighboring tissues, and this is repeated several times. It does not generally produce pain. At the end of three or four days, inflammation is excited, and a watery, acrid fluid flows from the part. This lasts about two days, when it will be found that the polypus has partly or wholly disappeared. The application should be suspended as soon as inflammation is excited, and renewed after it has disappeared, should all the polypus not have been removed.

RHINITIS.

DR. D. PORTER, OF ST. LOUIS.

In the early stages of rhinitis, this writer (*St. Louis Medical and Surgical Journal*, November, 1875, recommends mustard foot-baths and stimulating diaphoretics locally; the inhalation of a little chloroform when pain and irritation are prominent symptoms; resolvents and astringents when there is a sense of oppression and fulness, as the following:

1042. R.	Iodinii,	gr. v	
	Extracti conii,	gr. x	
	Chloroformi,	f. ʒj.	M.
To be used as an inhalant.			

In the chronic form of rhinitis, four points are mainly to be considered. The first has reference to the predisposing cause, the constitutional fault, which must be rectified. In the strumous type, iodide of iron, or iodoform and iron with cod-liver oil, are generally indicated. The treatment of the syphilitic type is obvious. If there is ulceration, potass-iodide, with ammonia and some form of tonic, are called for; but if no ulcers exist the *bichloride of mercury*, in small doses, if persevered with, he thinks has no equal. These cases he regards as much more manageable than those of scrofulous origin. In the forms dependent upon the catarrhal diathesis, phosphorus is indicated.

Secondly, the local cause of catarrh must be removed; polypi and glandular hypertrophies must receive appropriate treatment.

The third important item is to keep the part thoroughly cleansed, so as to remove all adherent mucus and incrustations. This he accomplishes by means of the nasal douche, under the immediate supervision of the physician, and with certain restrictions, viz.: the solution used should never exceed a drachm of salt to the pint of water, nor the pressure that of a column of water of twelve inches, and, to reach the upper parts of the nasal cavity, he attaches to the douche a tube with an aperture upon its side, through which, after the tube has been introduced into the nostril, the stream is directed upward. The same effect is produced by attaching the tube to a nasal syringe, or the apparatus of RUMBOLD may be used. Potass. permang. or salicylic acid may be used in spray after the cleansing.

Fourth, local medication, which consists in touching ulcers with

iodine in glycerine and water, with a little iodide of potassium, or with a weak solution of silver, the latter being recommended when there is thickening of the membrane. When the ulcerations are sluggish, he states that chloral hydrate (grs. v-xv to ʒj) answers a good purpose; where the thickening is not marked, iodine vapor does well; and finally, in many cases, the frequent use of a snuff, composed of camphor, tannic and salicylic acid, is advantageous.

In acute rhinitis, the following prescription may be employed with benefit, according to a writer in *Four. de Med. de Paris*, 1891.

1043. R. Salicylate of sodium,
Syrup of orange,
Peppermint water,

ʒ ss
f. ʒ ss
f. ʒ iv. M.

A teaspoonful to a dessertspoonful every three or four hours at the beginning of the attack.

THE EYE.

AMAUROSIS.

In certain cases of failure of vision, apparently owing to defective action of the optic nerve, the injection of *strychnine* into the temple has resulted advantageously. The following rules in these cases are laid down by

PROF. FRANCIS L. PARKER, M. D.,

In the *Transactions* of the South Carolina Medical Society, 1875:

1. The local application of strychnine in amaurosis and amblyopic affections is not applicable to cases arising from *existing or recent inflammation* of the optic nerve and retina; the ophthalmoscope is essential in determining the nature of the affection, whether arising from *functional* derangement or from a *mild or severe* form of organic disease.

2. In case of defective vision arising from *functional* derangement, sight is *generally promptly restored* by the local injection of strychnine; in the *milder forms* of organic disease, vision is generally promptly restored, or it may be simply benefited, but the result cannot be predicted by the ophthalmoscope: the treatment is entirely experimental. In the *advanced cases* of organic disease the remedy is useless.

3. If any practical benefit is to be derived from the local injection of strychnine *in functional or mild organic cases*, the injections being given daily, it will be evinced between the *first and ninth injections*, most frequently between the *first and fourth*, or between the *second and ninth days*. If manifest improvement does not take place in this time, it is useless to continue the remedy.

4. The quantity of strychnine used in the successful cases varies from $\frac{1}{10}$ to $\frac{1}{2}$ of a grain. The injection should be continued daily so long as sight continues to improve. When the maximum of sight is attained (if only after several injections) it is unnecessary to continue the remedy.

5. The tonic influence of strychnine in the successful cases continues for many months; in numerous cases it has lasted for one and two years. It has been known to last five years, and by some observers the cures are regarded as permanent.

6. The cases which are practically benefited by this remedy are those in which ophthalmoscopic revelations are negative (the functional cases); those in which the ophthalmoscope reveals anæmia of the disc and retina, with a normal distribution of vessels; or those in which only commencing atrophy of the disc, with *limited disease of the retina*, or retina and choroid, are present.

In *advanced* cases, involving the disc, retina and retinal vessels, the injection of strychnine is practically useless.

BLEPHARITIS.

MR. ROBERT BRUNDELL CARTER, F. R. C. S., LONDON.

The treatment should be commenced by removing the crusts by a warm alkaline lotion (sodii bicarbonatis gr. v, aquæ f. 3j) and then applying an astringent ointment, preferably that advised by Prof. PAGENSTECHER, of Wiesbaden, containing the yellow oxide of mercury:

PAGENSTECHER'S OINTMENT.

1044. R.	Hydrargyri oxidi flavi, Olei olivæ, Adipis,	gr. xxx f. 3j 3j.	M.
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If the disease resists this, the parts may be touched with a stick containing one-fourth part of nitrate of silver or with liquor potassæ.

Not unfrequently this condition of the lids is associated with the scrofulous dyscrasia, and for its permanent cure demands constitutional treatment.

Besides Pagenstecher's ointment, the surgeon may use :

1045.	R.	Zinci oxidi,	3 ij	
		Adipis purificati,	3 vj.	M.

Or,

1046.	R.	Hydrargyri nitratis,	3 ss	
		Cerati simplicis,	3 j.	M.

Whatever application is used, the most important precept is to make it sufficiently weak, to apply it not oftener than once or twice in the twenty-four hours, and to bring it fairly in contact with every portion of the diseased surface.

VIDAL recommends in cases of chronic blepharitis the following :

1047.	R.	Red precipitate,	gr. xij	
		Tincture of benzoin,	gtt. viij.	
		Vaseline,	3 ij.	M.

Apply to the borders of the lids.

CONJUNCTIVAL DISEASES.

PROF. J. SOELBERG WELLS, M. D., LONDON.

Hyperæmia of the Conjunctiva. This author states that hyperæmia of the conjunctiva is often caused by close application of the eyes, insufficient light, or from contact with atmospheric or mechanical irritants. The cause is first to be removed. In order to relieve the feeling of heaviness which oppresses the eyelids, employ one of the following evaporating lotions :

1048.	R.	Spiritus ætheris nitrosi,	f. 3 j	
		Acidi acetici aromatici,	gtt. vj	
		Aquæ destillatæ,	f. 3 vj.	M.

To be sponged over the closed eyelids and around the eyes three or four times daily, and allowed to evaporate.

1049.	R.	Ætheris,	f. 3 ij-iv	
		Spiritus rosmarinæ,	f. 3 iv.	M.

To be used in the same manner as F. 1048, but in smaller quantity, especially if the skin be delicate and susceptible.

The best *astringent lotions* are the following :

1050.	R.	Zinci sulphatis, Spiritus rosamarinæ,	gr. ij-iv f. $\frac{3}{4}$ vj.	M.
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1051.	R.	Plumbi acetatis, Aquæ destillatæ,	gr. ij-iv f. $\frac{3}{4}$ iv-vj.	M.
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The above are to be applied by saturating a piece of lint with the solution, and laying it over the eyelids for fifteen or twenty minutes several times a day, allowing a few drops to enter the eye.

In chronic cases of hyperæmia, these applications must give place to weak collyria, such as :

1052.	R.	Cupri sulphatis, Aquæ destillatæ,	gr. j-ij f. $\frac{3}{4}$ j.	M.
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1053.	R.	Argenti nitratis, Aquæ destillatæ,	gr. j-ij f. $\frac{3}{4}$ j.	M.
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A drop or two of one of these collyria is to be applied to the conjunctiva.

DR. J. R. WOLFE, F. R. C. S. E., SURGEON TO THE GLASGOW
OPHTHALMIC INSTITUTE.

This writer gives his treatment of granular conjunctivitis, trachoma, or Egyptian ophthalmia. (*Medical Times Times and Gazette*, April, 1876.) He remarks that the vesicular or granular stage is the chronic indolent condition of the disease, the acute being the purulent stage. Between these conditions there is the sub-acute or mixed stage. This form is highly contagious, and when it heals always leaves behind conjunctival cicatrices. The division of writers into *true* and *vesicular* granulations is unintelligible. Neither is there any reason for regarding the suppurating granulations as Egyptian ophthalmia, and the indolent form as mere granulations. It is the same disease in different degrees of activity. The indolent form may, at any time, rise to the suppuration stage, the same as the suppurative granulations may retrogress into the vesicular form. The disease is apt to involve not only the conjunctiva, but the tarsal cartilages, producing entropion, and by its friction upon the cornea gives rise to pannus, trachomatous degeneration, and rupture of the cornea.

With regard to the treatment, it is easily explainable why, in the first stage of the attack, warm poultices, as recommended by VON GRAEFKE, are of great use, because they promote suppuration and the

discharge of the foreign bodies or impurities which cause and propagate the disease. But when the disease has been of some standing, and therefore confirmed, when the granulations are firmly imbedded in the conjunctiva of the eyelids, and friction has produced corneal vascularity, softening and pannus, then there is the beginning of an interminable course of treatment and perplexity.

He has never seen any satisfactory result accruing from the use of astringents, of which blue-stone enjoys the greatest favor.

Inoculation with blenorrhagic pus is highly spoken of as a curative agent by competent authorities, but he has never availed himself of this remedy, because in all his visits to those hospitals where this treatment is resorted to, he has never seen a cure.

For a number of years he has adopted a uniform method of treating this disease, and found the result so satisfactory that he has seen no reason ever to depart from it. The remedies on which he relies are—1, scarification; 2, syrup of tannin; 3, friction; 4, solution of atropine; 5, astringent collyria.

Given, a typical case of granular conjunctivitis with pannus: he everts the upper and lower eyelids, and, with Desmarre's scarificator, makes free incisions into the conjunctiva of the eyelids, including the *cul-de-sac*. The incisions are only so deep as to allow free exit to the deposits, without encroaching on the tarsal surface; and with the finger he gradually squeezes out the granules. The surfaces being sponged with warm water to encourage bleeding, a solution of atropine is applied to the part, followed up with a borax lotion in warm water three times a day. Two days afterwards the eyelids are again everted, and the *syrup of tannin* poured upon them.

1054. R. Acidi tannici,
Syrupi simplicis,

℥ij
f. ℥j, M.

The lids being drawn forwards, the conjunctival surfaces are then rubbed against each other, with the view of disintegrating any of the deposits which may still remain there. The scarification is again resorted to in a fortnight or three weeks later, according to the exigencies of the case; but the syrup of tannin and friction are applied every second or third day. By these means the granulations are gradually got rid of, and the thickening and corneal pannus disappear, the cornea gradually recovering its transparency.

DR. A. M. ROSEBURGH, SURGEON TO THE TORONTO EYE AND EAR INFIRMARY.

In simple catarrhal conjunctivitis this surgeon directs the eye to be bathed frequently, and simple cerate to be applied to the edge of the eyelid at bed-time. A solution of atropine (gr. ij) applied occasionally to the conjunctiva will reveal, by its effect on the shape of the pupil, whether the iris is involved or not. This answers for the first week.

In the second week the use of local applications should begin; either:

1055. R.	Hydrargyri oxidi rubri, Glycerini amyli,	gr. viij ℥. ⅓ j.	M.
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Or,

1056. R.	Argenti nitratis, Aquæ destillatæ,	gr. iij ℥. ⅓ j.	M.
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The latter may be gradually increased to a strength of gr. xv during three weeks of treatment. It should be dropped into the eye three or four times a day, and the eyes bathed afterwards in warm water.

After the first week of treatment, when a stronger solution is being used, the eyelids should be everted, and the remedy applied to the palpebral conjunctiva with a camel's-hair brush, and in a few seconds any excess of the solution washed off with warm water before the lid is replaced. The stronger solutions are applied in this manner once a day, and, in addition, the three-grain solution may be still used two or three times a day, while the ocular conjunctiva remains congested and œdematous. The treatment is continued until both the ocular and palpebral conjunctivæ have resumed the healthy condition. When the plasma of the red oxide of mercury is used, it is applied to the everted palpebral conjunctiva twice a day (and not washed off), and no other local application used, with the exception of the occasional use of atropine solution, and fresh lard applied to the edge of the eyelids at bed-time.

In "granular lids" a stimulating plan should be adopted. In chronic cases, where the patient is in robust health, with no phlyctenular or ulcerative inflammation of the cornea, either a solution of nitrate of silver (thirty grains to the ounce) may be applied, the solid sulphate of copper, or the mitigated stick of nitrate of silver

and nitrate of potash. In cases, however, either recent or chronic, where there is present, or where there is a tendency to, phlyctenular or ulcerative inflammation of the cornea, the nitrate of silver or sulphate of copper is inadmissible. Again and again one sees cases put back for weeks by an attack of phlyctenular keratitis, evidently caused by the use of the "blue stone" or nitrate of silver.

In these cases the plasma of the red oxide of mercury, of the strength of gr. j- $\bar{5}$ j, may be applied morning and evening, without, however, brushing or syringing with water, the everted lid returned with the oxide adhering to the palpebral conjunctiva. The eyelids are bathed occasionally, during the interval, with very warm water. The application of the red oxide is not so stimulating as the sulphate of copper or nitrate of silver, and consequently the treatment extends over a longer period; but there is no local application that is so well adapted to the corneal complications, and none that will more certainly prevent their recurrence. Of course the general condition of the patient must not be neglected. A generous diet should be allowed, and when necessary, tonics prescribed.

In phlyctenular or pustular ophthalmia, with photophobia and lachrymation, the best local treatment, in the case of young children, is to keep the eye constantly under the influence of atropine. The four-grain solution is applied twice a day, the excessive watery secretion being first removed, to prevent the dilution of the atropine solution. Any accompanying eczema or ulceration of the nasal mucous membrane may be treated with the local application of the nitrate of mercury ointment or the plasma of the red oxide. Children under five years of age should be put on a milk diet, combined either with stale bread or well-cooked oatmeal porridge. The less the deviation from this wholesome diet the better. If the milk is rich in cream, the administration of cod-liver oil is rendered less necessary. A tonic course of treatment is invariably indicated, and there is probably no preparation better adapted to these cases than that of the syrup of the iodide of iron.

In the local treatment of phlyctenular inflammation, either of the conjunctiva or cornea, in adults, the plasma of the red oxide of mercury may truly be said to be a specific. The plasma is applied twice a day, as follows: Instead of applying it simply behind the lower eyelid, as is done by some practitioners, the eyelashes of the upper eyelid are held by the thumb and finger of the left hand, and the lid drawn forward. A small quantity of the plasma is now pushed up

under the lid with a camel's-hair brush. Before the brush is withdrawn, the lid is pressed down, so as to retain the plasma; and on the removal of the brush, the oxide is well diffused over the eye by rubbing the eyelid over the eye. The treatment, in any case, should be commenced with the least quantity that will adhere to the end of the brush, and the quantity increased as it is tolerated. In cases of ulceration, where the patient can keep the eye steady, the plasma should be applied directly to the affected part, and allowed to remain a few seconds, or so long as the eye can be kept open. Where the case is complicated with "granular lids," the oxide is applied to the everted palpebral conjunctiva, and allowed to remain about half a minute before the lid is closed.

The strength generally used is one grain to the drachm; but in some cases, where the patient has been under treatment for several weeks, a preparation of double that strength (two grains to the drachm) is frequently well borne, and the case improves more rapidly.

It is not easy to have the plasma properly prepared. The proper formula is to make simple plasma, or *Glycerinum Amyli*, B. P.: take 1 oz. starch and 8 fluid oz. pure glycerine, rub the starch with an ounce of distilled water till quite blended, then add the glycerine and apply heat, gradually increased, till a thick jelly is produced. The preparation must be constantly and thoroughly stirred while making, and if an appearance of granular lumps is shown, squeeze the product before it is cold through cheese-cloth or doubled muslin, previously well washed to remove any loose fibres.

To make the mercurial plasma, it is necessary to have a perfectly smooth and even-surfaced mortar and pestle, in order to obtain the oxide in an impalpable powder. While triturating, keep it moist by the addition of rectified spirit from time to time. Care is also required to keep the powder, which may adhere to the pestle, scraped off very frequently. When thoroughly triturated, the simple plasma is added in the desired proportion and mixed thoroughly.

The efficiency of the trituration may be best tested by rubbing a few grains of the plasma on a piece of fine white paper. On holding this up to the light, there should be no appearance whatever of any specks.

PROF. DAVID W. YANDELL, M. D., LOUISVILLE.

This surgeon insists on the importance of constitutional treatment in *trachoma*, iron and quinine with fresh air, bathing and good diet.

Locally he makes free scarifications of the granulations, promotes the bleeding by hot water, and applies the smooth crystal of sulphate of copper. The pain is best relieved by hot water. The patient is directed to bathe the eyes several times daily in salt water. To prevent the gluing of the lips, he directs the use of:

1057. R.	Unguenti hydrargyri oxidi rubri,	3j.	
	Olei morrhuae,	f. 3j.	M.

Rub at night on the margin of the lids.

DR. MARTIN F. COOMES, LOUISVILLE.

This ophthalmologist severely condemns (*Medical and Surgical Reporter*, August, 1875,) the use of nitrate of silver in *acute conjunctivitis* (catarrhal ophthalmia.) Out of over ninety cases he had treated by simpler means, not one resulted in the least impairment of vision. In purulent cases he cleansed the eye frequently with warm water and collyria of alum, gr. ij to water f. 5j. When the discharge commenced to diminish, a solution of sulphate of copper, from ten grains to the ounce to a saturated solution, was applied to the everted lid once every two or three days. The early stages of the milder form were treated with:

1058. R.	Sodii boratis,	gr. x.	
	Aquæ camphoræ,	f. 3j.	M.

Apply every hour or two.

In later stages, a weak solution of sulphate of copper, or:

1059. R.	Acidi tannici,	gr. iij-x	
	Aquæ,	f. 3j.	M.

MR. GEORGE LAWSON, F. R. C. S., LONDON.

In the treatment of *acute conjunctivitis* (catarrhal ophthalmia), this author recommends that every two or three hours, or oftener, if the case be a severe one, the eyes be bathed with one of the following lotions, being careful, at each application, to permit a small portion to flow into the eyes:

LOTIO ALUMINIS.

1060. R.	Aluminis,	gr. vj	
	Aquæ destillatæ,	f. 3j.	M.

LOTIO ALUMINIS MITIOR.

1061. R.	Aluminis,	gr. iv	
	Aquæ destillatæ,	f. 3j.	M.

LOTIO ALUMINIS CUM ZINCI SULPHATE.

1062.	R.	Aluminis,	gr. iij	
		Zinci sulphatis,	gr. j	
		Aquæ destillatæ,	f. ʒj.	M.

Cool water should be employed between the times of these applications, to keep the eyes free from discharge.

A solution of nitrate of silver (gr. j-ij to the ounce) is useful particularly when there is chemosis of the conjunctiva and swelling of the lids. Two or three drops of this should be dropped in the eye twice a day.

In chronic and purulent cases, he recommends as local applications, when there is any extra secretion present, stimulating drops or lotions, such as what he terms his

GUTTÆ ARGENTI NITRATIS.

1063.	R.	Argentii nitratis,	gr. j	
		Aquæ destillatæ,	f. ʒj.	M.

GUTTÆ ZINCI SULPHATIS.

1064.	R.	Zinci sulphatis,	gr. j-ij	
		Aquæ,	f. ʒj.	M.

These solutions should be brushed over the lids of the eye twice a day.

If there be no abrasion of the cornea, the following lotion will be useful:

1065.	R.	Plumbi acetatis,	gr. ij	
		Acidi acetici diluti,	ʒj	
		Aquæ destillatæ,	f. ʒ ss.	M.

At night, if there be much secretion from the Meibomian follicles, the tarsal edges of the lids should be anointed with:

UNGUENTUM HYDRARGYRI NITRATIS DILUTUM.

1066.	R.	Unguenti hydrargyri nitratis,	ʒj	
		Unguenti cetacei,	ʒ ss.	M.

Stimulating applications should not be made to the eye when there is much photophobia, for they then fail to do good, and only act as irritants.

PROF. GUNNING S. BEDFORD, NEW YORK.

1067.	R.	Hydrargyri chloridi corrosivi,	gr. j	
		Ammonii muriatis,	gr. iv	
		Aquæ destillatæ,	f. ʒvj.	M.

Make a solution.

For *purulent ophthalmia in new-born infants*, the eyes to be washed with the solution several times during the day. The applications should not be confided to the nurse; they should be made by the practitioner himself, as follows: The child being placed on its back, resting in the lap of the nurse, the practitioner, placing its head on his knee, with a soft sponge, moistened with tepid water, cleanses the eyes. The lids are then gently separated, and after everting them, the accumulated matter is removed, and the collyria applied.

It may become necessary to touch the inflamed conjunctiva, by means of a camel's-hair pencil, with the following solution once a day:

1068.	R.	Argenti nitratis,	gr. ij	
		Aque destillatæ,	℥. ʒj.	M.
Make a solution.				

When the child falls asleep, the outside borders of the lids, in order to prevent their agglutination, should be smeared with fresh, unsalted butter, fresh olive oil, or, what perhaps is better, the red precipitate ointment. The bowels are to be kept regular with castor oil or flake manna in solution, and, above all, the eyes are to be kept clean and protected against light.

MR. A. R. HALL, SURGEON, R. A.

This surgeon treats cases of infants suffering from *purulent ophthalmia* by simply painting the lower eyelids, upper parts of the cheeks and temples, with the pure balsam copaiva. They get well quickly, without damage to the eyes. (*Practitioner*, April, 1875.)

DR. B. A. POPE, OF NEW ORLEANS.

In reference to *membranous and diphtheritic conjunctivitis*, that is, when there is infiltration of the conjunctiva, with diminished vascularity and tendency to the formation of false membranes, cauterization and the use of astringents are contra-indicated. Frequent *cleansing of the eye*, the application of *cold-water dressings*, and the careful use of *mercurials*, are the principal means of treatment.

In the early stages of the disease, the *application of leeches* to the temple is often of decided advantage.

In a case of *diphtheritic conjunctivitis*, it is only when the second stage of the disease has arrived, namely that of restored vascularity and commencement of *purulent secretion*, that the use of nitrate of

silver can be resorted to. The third stage, or that of cicatrization, can be but little benefited by treatment.

The solution of nitrate of silver preferred by our author is of the strength of gr. vj to f. ʒj. In administering mercury to adults, he orders gr. ʒ of calomel every two hours, and mercurial inunctions upon the temple three times a day, or mercurial inunctions alone, upon the temple and in the axilla, every two hours.

SCROFULOUS CONJUNCTIVITIS.

1069. R. Coniinae, gr. v
Alcoholis,
Aquæ, āā f. ʒ ss. M.

Used with advantage in some cases of scrofulous ophthalmia with photophobia, by rubbing near the eyelid several times daily.

In the spasmodic contraction of the orbicularis in scrofulous children, Professor MAUTHER, of Vienna, has recommended penciling the eyelids twice or thrice daily with the following:

1070. R. Coniinae, gr. j
Olei olivæ, f. ʒ ij. M.

For local use.

DR. JAMES BRAITHWAITE, OF LEEDS, ENGLAND.

1071. R. Extracti belladonnæ, gr. iv-v
Potassii iodidi, ʒ ss-j
Syrupi aurantii, f. ʒ j
Aquæ, f. ʒ vij. M.

Two teaspoonfuls every four hours to a child two years old.

Dr. BRAITHWAITE thinks iron is injurious in strumous ophthalmia, and trusts to belladonna, given under the following conditions (*Practitioner*, October, 1872): It should be given early, without waiting till other means fail; extract of belladonna rubbed up with glycerine should be applied over the eyelids, eyebrows and temples (atropine is liable to produce irritation.) Hardly a case but improves rapidly under this treatment.

Mr. J. WARRINGTON HOWARD strongly recommends, in obstinate cases of this complaint, to apply a *blister* the size of a sixpence behind the ears. Locally, he washes the eyes with a weak solution of alum, and at night smears the edges with olive oil. This is aided by the administration internally of cod-liver oil and iron. (*St. George's Hospital Reports*, 1871.)

When the *cornea* is involved through chronic scrofulous ulceration, especially when the disease has progressed into its later stages in

strumous children, Mr. JONATHAN HUTCHINSON has derived great advantage from the insertion of a *seton*. He takes two threads of thick silk, and places them in the integument over the temple, among the hair, so that they will cause no deformity.

Dr. H. H. TOLAND has found the best collyrium to remove the excessive photophobia that always exists in strumous ophthalmia to be a solution of *nitrate of silver*, gr. ij to f. ̄j of distilled water. Its use should be abandoned as soon as possible, and a solution of alum, gr. v. to aquæ f. ̄j, be substituted, for fear of staining the conjunctiva. Constitutional treatment is always demanded in addition.

CORNEAL DISEASES.

OPACITY AND ULCERATION OF THE CORNEA.

MR. C. MACNAMARA, F. R. C. S., LONDON.

This writer believes that for the nebula and haziness resulting from chronic granular conjunctivitis, *tannic acid*, dusted into the afflicted eye once or twice a day, affords the patient a better hope of relief than any other treatment. In the Westminster Ophthalmic Hospital, of which he is surgeon, is used, in cases of nebula and corneal opacities:

1072.	R.	Oxide of zinc,		
		Armenian bole,	āā	3ij
		Olive oil,		f. 3iv
		Ammoniated mercury,		3j
		Lard,		3iv.
				M.

MR. T. HOLMES, LONDON.

The opacity of the cornea remaining after keratitis may often be greatly benefited by injecting under the conjunctiva (after all inflammatory action has ceased) a solution of common salt:

1073.	R.	Sodii chloridi,	gr. x.	
		Aquæ destillatæ,	f. 3j.	M.
A few drops to be injected under the conjunctiva once a fortnight.				

The treatment by *tattooing* remains as a last resort to remove the disfigurement.

In the opacity or ulceration of the cornea so common in small-pox, the following ointment should be applied to the cloudy or opaque cornea once daily with a camel's hair pencil:

1074. R. Hydrargyri oxidi flavi,
Olei olivæ,
Adipis præparati,

gr. xij
f. 3 ij
3 vj.

M.

For an ointment.

This ointment is known to be of great use in severe conjunctivitis, and it was first used by Dr. GAYTON for conjunctivitis in variola, in cases in which opacity of the cornea co-existed; and he found that it had a most marked effect on the latter.

The red oxide of mercury is also applied to opaque spots on the cornea.

It is most important to examine the eyes of patients with small-pox daily, and the moment the slightest nebula is discovered, to apply the ointment, when the increase of opacity will not only be prevented, but a cure will probably be effected in a few days.

The medicinal treatment of opaque lens, with the view of its removal, or clearing up, has thus far given rather poor results. But in the early stages of inflammatory conditions, likely to lead to cataract by contiguity, much may undoubtedly be accomplished. A few years ago M. LAVIGNOT proposed the use of oleaginous solutions of *phosphorus*, applied to the conjunctiva, and rubbed into the forehead, and asserted that he had proved that this had produced the removal of the lens in several cases; but this assertion has not been substantiated by others.

DR. JOHN GREEN, OF ST. LOUIS.

Dry calomel, in impalpable powder, dusted in very minute quantity into the eye once a day, is a highly valued remedy in the healing stage of corneal ulcers. PAGENSTECHER'S ointment (see F. 1044) answers well in cases which require stronger stimulation.

MR. T. HOLMES, OF LONDON.

The general directions of this surgeon for the management of corneal ulcer are to obtain repose of the sphincter of the pupil and the muscles of accommodation by means of atropine, to prevent friction of the lids by a well-applied compressive bandage, to employ hot fomentations, tonics and nutritious diet.

Mr. JONATHAN HUTCHINSON remarks in one of his lectures that no operation in corneal ulcer ought to be resorted to until after an efficient trial of the *hot-fomentation* plan. In a large majority of cases, corneal ulcers with hypopyon, if seen in an early stage, will do perfectly well if the patient be put to bed and the eye fomented

constantly with a hot belladonna solution; but it must be almost literally constant, and as hot as the patient can possibly bear it. Anything short of this in these dangerous cases is usually only waste of time.

In regard to operating, he adds that in many cases, after an iridectomy, the patient's pain is at once permanently relieved; the hypopyon never re-forms, and the ulcer steadily heals afterwards. As there is generally a central opacity resulting from the ulcer, the iridectomy method of treatment has the additional advantage of securing beforehand an artificial pupil.

DR. LAURENCE TURNBULL, OF PHILADELPHIA.

The form of inflammation of the eyes known as "*phlyctenular keratitis*" occurs in children from the commencement of teething up to the eighth year. It is attended by excessive intolerance of light. The following collyrium will be found of value:

1075. R.	Hydrargyri chloridi corrosivi,	gr. j	
	Ammonii muriatis,	gr. vj	
	Tincturæ belladonnæ,	f. ʒ ij	
	Aquæ destillatæ,	f. ʒ viij.	M.

A teaspoonful of this, in a wineglassful of water, to be applied frequently, with a pledget of lint on the closed lids.

The pupil should be maintained well dilated by the use of a solution of atropine. The eyes should be well protected from the glare of the light, and the constitution supported by bark and ferruginous tonics.

IRITIS.

MR. ROBERT BRUDENELL CARTER, F. R. C. S., LONDON.

On the treatment of iritis this author says the first principle to be borne in mind is to *avoid all irritants*, such as astringents, nitrate of silver lotions, etc. The eyes should be given complete functional rest, and to prevent adhesions, the cardinal point is the use of atropine, which should never be omitted, save in excessively rare cases where it produces local inflammatory action. A four-grain solution should be applied at intervals of an hour till complete dilatation is obtained, and this should be kept up by a single drop of the solution night and morning. When the atropine, from any cause, fails to di-

late the pupils fully, *the use of mercury is imperative*, pushed as rapidly as possible to its constitutional action, as shown by the slight mercurial line on the gums. This should be maintained until the resolution of the inflammation is accomplished. But the condition of salivation should never be brought about designedly.

During the whole period of treatment the eye should be closed and protected by a compressive bandage, applied with comfortable tightness over a pad of jeweler's cotton-wool. By this means the patient will be enabled to walk abroad without restraint, so long as he avoids injurious fatigue or hurry. Sometimes, especially when resting at home, a poultice will be a pleasant substitute for the pad and bandage; but neither the one nor the other should be applied until a quarter of an hour after the instillation of the atropine, lest the solution should be absorbed and removed from the eye.

When the inflammatory symptoms are rapidly subsiding, the mercury, and probably the opium, may be entirely laid aside. But the continued use of atropine is necessary in order to prevent relapse; and the pupil should be kept fully dilated until the eye is quite well. As long as the pupil is dilated the eye does not participate in the functional changes of its fellow, to which, therefore, moderate use may be permitted. An attack of any severity usually leaves behind a temporary proneness to conjunctival irritation, which the atropine may often assist to keep up. For this the cautious use of a mild astringent, such as:

1076. R. Zinci sulphatis,
Aquæ destillatæ,

gr. iv
f. $\frac{3}{4}$ iv. M.

This collyrium will usually be found effectual.

It will often be desirable to protect the eye from the glare, wind and dust, after a severe attack, by the use of blue glasses. These are now made of a watch-glass form, for the purpose of excluding side light.

MR. A. R. HALL, SURGEON, R. A.

This surgeon (*Parctitioner*, April, 1875,) records the very excellent results he has had with *balsam of copaiba* in iritis and scleritis. He gives to adults f. $\frac{5}{8}$ ij, in mucilage, three times a day. The pain should be diminished in twenty-four or forty-eight hours, and the sight restored.

GEORGE LAWSON, F. R. C. S., SURGEON TO THE ROYAL LONDON OPTHALMIC HOSPITAL, MANSFIELD.

In the treatment of *syphilitic iritis*, our author regards mercury as imperatively called for. It should be given in doses sufficiently large and frequent to bring the patient quickly under its influence, but as soon as the gums begin to grow tender and spongy the quantity should be diminished, so as to avoid anything like profuse salivation. A piece of the size of a hazel nut, of the *unguentum hydrargyri*, may be rubbed into the axilla night and morning, or a pill with calomel and opium may be administered.

1077. R.	Hydrargyri chloridi mitis,	gr. j-ij.	
	Pulveris opii,	gr. $\frac{1}{4}$ -ss.	
	Confectionis rosæ.	q. s.	M.

For one pill. Thrice daily.

If the patient be feeble, quinine may be prescribed at the same time, and it may be conveniently ordered in the following mixture:

1078. R.	Quininæ sulphatis,	gr. xij	
	Acidi sulphurici diluti,	f. 3 ij.	
	Tincturæ aurantii,	f. 3 vj	
	Aquæ destillatæ,	q. s. ad f. 3 vj.	M.

Tablespoonful, in water, thrice daily, while the mercurial inunction is used night and morning.

If the patient has already been salivated before he first comes under treatment, the following iodide of potassium mixture should be given:

1079. R.	Potassii iodidi,	gr. xxxvj	
	Potassii bicarbonatis,	3 j	
	Infusi quassiæ,	f. 3 vj.	M.

A tablespoonful thrice daily.

At the same time a slight mercurial action may be kept up by the use of the following:

UNGUENTUM HYDRARGYRI CUM BELLADONNA.

1080. R.	Extracti belladonnæ,	3 j.	
	Unguenti hydrargyri,	3 vij.	M.

To be rubbed into the brow and temple, and allowed to remain on during the day.

When all the effused lymph has been absorbed, and the iritis has nearly subsided, the mercurial medicines should be omitted, but the iodide of potassium should be continued for two or three months, combined with a bitter tonic, or, if the patient is anæmic, with some preparation of iron, as the

MISTURA POTASSII IODIDI CUM FERRO.

1081. R.	Potassii iodidi,	gr. xxxvj	
	Potassii bicarbonatis,		
	Ferri et ammonii citratis,	āā	3j
	Aquæ destillatæ,		f. $\frac{3}{4}$ vj.
			M.

A tablespoonful, in water, thrice daily.

If the iritis recurs after some months, or if it assumes a chronic form, the following mixture will be found of great service :

1082. R.	Hydrargyri chloridi corrosivi,	gr. j	
	Potassii iodidi,	3j	
	Tincturæ calumbæ,	f. $\frac{3}{4}$ ij	
	Aquæ destillatæ,	q. s. ad f. $\frac{3}{4}$ vj.	M.

Two tablespoonfuls, in a glass of water, two or three times a day.

Atropine is essential in the treatment of every form of iritis, and should be ordered at the very commencement of the attack, and persevered in during its continuance. A solution, of the strength of gr. ij to aquæ f. $\frac{3}{4}$ j, should be dropped into the eye two or three times a day. When the atropine fails to give ease, or acts, as is sometimes the case, as an irritant, the following belladonna lotion may be employed:

LOTIO BELLADONNÆ.

1083. R.	Extracti belladonnæ aquosæ,	℥ ij	
	Aquæ destillatæ,	f. $\frac{3}{4}$ viij.	M.

Rheumatic Iritis also requires a moderately active mercurial treatment. F. 1082 may be given during the day, and at night the following pill :

1084. R.	Hydrargyri chloridi mitis,	gr. j	
	Pulveris ipecacuanhæ compositi,	gr. v.	M.
	For one pill.		

Or the mercurial and belladonna ointment (F. 1080) may be rubbed daily into the temple.

In some cases the treatment may fail to give relief. Then quinine, in two-grain doses, may be ordered with benefit. Or the quinine may be combined as follows :

1085. R.	Quininæ sulphatis,	gr. xij.	
	Tincturæ ferri chloridi,		
	Acidi nitrici diluti,	āā	f. $\frac{3}{4}$ j.
	Aquæ destillatæ,		f. $\frac{3}{4}$ vj.
			M.

A tablespoonful, in water, to be taken through a tube thrice daily.

When there is great photophobia and pain in the eye, the quinine

or quinine and iron treatment, together with a mild mercurial inunction on the temple, will be found most useful. To relieve the pain, a fourth or a third of a grain of the *acetate of morphine* may be injected subcutaneously into the arm. Our author directs the following for the

INJECTIO MORPHINÆ.

1086. R. Morphinæ acetatis, ℥iv.
 Aquæ destillatæ, ℥j. M.

Rub the morphine gradually with the water, and add a few drops of dilute acetic acid, if necessary, for a perfect solution. Of this preparation, six minims contain one grain of morphia.

Turpentine has been prescribed with advantage in obstinate cases of *non-syphilitic iritis*. It may be ordered as follows:

1087. R. Olei terebinthinæ, f. ʒiij.
 Syrupi acaciæ, f. ʒiss.
 Aquæ pimentæ, f. ʒiv. M.
 A tablespoonful four or five times a day.

During the whole time the pupil should be kept well dilated by means of atropine or the belladonna lotion. (F. 1083.)

N. C. MACNAMARA, PROFESSOR OF OPHTHALMIC MEDICINE,
 CALCUTTA.

1088. R. Atropinæ, gr. iv.
 Aquæ, ℥j. M.

To be dropped into the eye, three times a day, in cases of syphilitic iritis in children.

Mercurial ointment should also be rubbed into the thighs every other night, for twenty minutes; and thirty drops of cod-liver oil, with one-half grain of iodide of iron, should be administered twice a day to an infant six months old. For syphilitic iritis, mercury, judiciously employed, is the sheet-anchor to be relied upon. The best mode of employing it in these cases is by inunction. Our author never prescribes mercury internally for children, nor does he find it necessary to push the treatment so far as to affect the gums.

According to MACKENZIE, and, indeed, all the best authorities, atropine ought to be employed as a collyrium in every case of iritis, and in all stages of the disease.

STYES (HORDEOLUM.)

DR. LAURENCE TURNBULL, OF PHILADELPHIA.

A sty generally arises from an obstruction of the follicles of the lid in an enfeebled constitution. The swollen follicle should be freely opened, the part allowed to bleed, and a hot fomentation applied. A general tonic and alterative course is also demanded. A combination of iron and quinine may be used, including *tinctura arnicæ*, gtt. xx, thrice daily. Locally, if seen early, touch the swelling with ointment of nitrate of mercury, a drachm to the ounce, or double that strength.

MR. R. B. CARTER, F. R. C. S., LONDON.

For the early dispersion of styes, this surgeon recommends that as soon as the pimple is perceived, the eyelash passing through it be extracted with a fine forceps, and a sharpened point of dilute *nitrate of silver* stick be immediately placed upon the mouth of the open follicle and held there steadily for a few seconds.

Other surgeons recommend touching the part with dilute *tincture of iodine*.

Mr. JOHN MARSHALL has spoken very highly of a solution of *oleate of mercury*:

1089.	R.	Hydrargyri oleati,	gr. v	
		Acidi oleici,	gr. c.	M.
Apply to the follicles with a camel's-hair pencil.				

Whatever local treatment is used, it is essential that if the styes have a tendency to recur in successive crops, constitutional treatment be invariably resorted to, as this recurrence generally signifies diminished vitality of the organism. *Quinine* is probably the most effective of all the agents which may be called in service. The *citrate of iron and quinine* is a valuable preparation in children, who are more subject than adults to this complaint. When, as is not infrequently the case, scrofulous symptoms are present, these must be combated as will be described hereafter.

WOUNDS AND INJURIES.

BURNS AND SCALDS OF THE EYES AND LIDS.

GEORGE LAWSON, F. R. C. S., ENGLAND.

1090.	R.	Glycerini,			
		Aquæ rosæ,	āā	f. ʒ ij	
		Aquæ destillatæ,	q. s. ad	ʒ viij.	M.

A soothing lotion for washing the eye and lids in cases of burns and scalds. A few drops of olive oil should be dropped into the eye, and the lids then gently closed, and some cotton-wool laid closely over them, which may be kept in its place by a single turn of a light bandage. The dropping of the oil into the eye should be repeated two or three times during the day, and each time the bandage is removed the above lotion should be employed to remove any discharge which may have accumulated. This is the only treatment slight cases require.

ECCHYMOSIS BENEATH THE CONJUNCTIVA.

DR. A. H. JACOB, SURGEON TO DUBLIN EYE AND EAR INFIRMARY.

Sub-conjunctival ecchymoses are more usually caused by a slight scratch than by a heavy blow, and are very commonly the result of great straining on the part of the patient, either in coughing or retching, especially those who are in the anæmic condition, which encourages small hemorrhages under the skin, and in such cases there need be no injury at all. In this way ecchymoses are frequently observed in cases of purpura, and occasionally in Asiatic cholera. The effusion of blood beneath the conjunctiva may be distinguished from any other form of vascularity—

a. By its brilliant, uniform, scarlet, velvety surface, when recent, which completely hides the sclerotic.

b. By the absence of any visible blood-vessels.

c. By the irregular, ragged edge.

It may be so large as to occupy the whole sub-conjunctival cellular tissue, and to raise up the conjunctiva into folds, or it may amount to no more than a small scarlet spot on the sclerotic. It never invades the corneal conjunctiva, because the attachments of the conjunctiva to the anterior elastic cornea are much closer than those which connect it with the sclerotic.

Surgical interference for sub-conjunctival hemorrhage is neither necessary nor effective. If the patient will wait, the ecchymoses are best let alone, and they will go through the sequences of color usual in the case of a black eye, until they finally disappear in eight or ten days. If the effusion be excessive any one spot, the conjunctiva may, without fear of mischief, be divided, and the blood squeezed out; and if a patient be impatient for restoration of good looks, a lotion may be prescribed to aid absorption.

The following is the formula which Dr. JACOB has used :

1091.	R.	Potass. iodidi,	3ij.	
		Tr. arnic. montan.,	f. 3 iss.	
		Aq. rosmarini,	q. s. ad f. 3 vj.	M.
For a lotion.				

The following collyrium, though inelegant, is more effective :

1092.	R.	Ol. jecor. asel.,	f. 3 j.	
		Pot. iodidi,	gr. v.	
		Iodi,	gr. j.	M.
For a collyrium.				

DR. CHARLES S. BULL, OPHTHALMIC SURGEON TO CHARITY
HOSPITAL, NEW YORK.

In blows and other contused wounds of the eye, this surgeon observes (*American Journal of the Medical Sciences*, October, 1876,) that the great desideratum seems at first to be rather a negative one, not to do too much. With atropine, local blood-letting, and occasional resort to the influence of mercury, and enforced quiet in a moderately-darkened room, we can do much to counteract the effect of such injuries. Moreover, we should not be in too much of a hurry to advise the enucleation of such an injured eye, simply because vision seems irretrievably lost, and the eye apparently destroyed. Experience teaches us all that by careful and long-continued treatment, some sight may, in many cases, be restored. If the patient can be kept under constant observation, and no signs of sympathetic trouble have as yet appeared, and the injured eye is not certainly destroyed, the best surgery is not to enucleate. But the moment sympathetic irritation appears, there is but one course to pursue. If the patient cannot be kept under observation, then the best plan is to enucleate at once, and thus avoid the possibility of any future trouble.

Somewhat different advice is given by

DR. JULIAN J. CHISHOLM, OF BALTIMORE.

This surgeon states (*Virginia Medical Monthly*, August, 1875,) that the axiom "*that every lost eye from injury should be taken out,*" has no qualification, and is absolute. No surgeon will ever do wrong who removes an eye lost through injury, whether, at the time of operation, the eye gives trouble or not. Whenever it is taken out, a dangerous enemy is surely gotten rid of.

A lost eye from accident is a deformed one, marred in its proportions or made conspicuous by the whiteness of its opaque lens, or exhibits a scarred surface and discolored iris, indicating the character of the injury which had destroyed the sight. Such unsightly eyes, from which the perception of light has forever departed, often flush up under the slightest exposure, and remain both a deformity and an ever-threatening source of trouble.

It is always best to remove the lost eye before the good one has become in any way affected. Should an active, sympathetic irritation be excited before this precaution has been taken, there is no surety that the good eye will not be more or less permanently injured by the inflammatory process. Sometimes the attack in the good eye does not yield at the moment the injured eye is removed, and in some cases the destructive process, once commenced, will go on in the good eye, notwithstanding the extirpation of the lost one.

One often sees patients with dangerous wounds of the eye experience such protracted suffering as to incapacitate them from all work for many months after the accident. In such cases, if the eyeball be extirpated, relief comes so promptly and decidedly that the patient is ready to resume his regular employment in a few days.

NOTES ON REMEDIES.

IN EYE DISEASES.

Alumen is one of the most esteemed ingredients in ophthalmic pharmacy.

As an element in astringent collyria, it is, in many affections, unsurpassed. The usual formula at the Royal London Ophthalmic Hospital is:

1093. R.	Aluminis,	gr. ʒj	
	Aquæ destillatæ,	f. ʒj.	M.

For a collyrium. To be applied every quarter or half hour.

Or the following:

1094. R. Aluminis,
Extracti belladonnæ,
Aquæ destillatæ,

℥ij
3ss
f. 3 viij.

M.

For a collyrium.

"Alum curd" may be made by adding ʒij of alum to a pint of milk and straining; or, by mixing ʒss of alum with the white of one egg. It is a soothing, popular application.

Amyl Nitrite has been used successfully in cases of amblyopia, by Dr. H. R. SWANZY. The inhalations were ten drops at a time. (*Medical Press and Circular*. Jan., 1877.)

Argenti Nitras. This powerful agent appears not to be so much used as formerly by ophthalmologists, as its place can often be supplied by less dangerous remedies. Its incautious use, when there are corneal ulcers, will result in unsightly deposits and opacities. In ophthalmia, its employment is very severely condemned as always needless, and often most hurtful, by various eminent surgeons. In acute conjunctivitis, a weak solution, gr. j-iiij to aquæ f. ʒj, is used; in granular lids, a stronger solution, gr. xx to aquæ f. ʒj; or the eyelids may be everted and lightly touched with the caustic stick, either of full strength or mitigated. In tinea tarsi, the solid nitrate may be passed over the edges of the eyelids, first removing the eyelashes and the scabs.

Arnica is recommended by Dr. TURNBULL in styas. (Page 702.) Dr. JACOB employs it in conjunctival ecchymosis. (F. 1091.)

Arsenicum. In strumous ophthalmia, Mr. T. A. ROBERT says he has never failed of success since he has adopted the treatment by liq. potassii arsenitis, ℥ij-viij thrice daily in infusion of cinchona, and locally gtt. j of a solution of nitrate of silver, gr. ij to aquæ f. ʒj, dropped into the eye every three or four days. (*Lancet*, Feb., 1877.) Mr. CARTER strongly advises it in the same disease, especially where there is much irritability.

Atropine. This indispensable agent is supplied in the British Pharmacopœia in an officinal solution, gr. iv to f. ʒj. If a minim of this be dropped into the eye, it will in most cases produce in half an hour complete dilatation of the pupil. It is then that the power of accommodation becomes impaired, and near objects cannot be distinctly seen. In about an hour later, *i. e.*, an hour and a half from the instillation, there is more or less complete paralysis of accommodation, and no objects within twenty feet can be distinctly seen. When complete paralysis of accommodation is once produced, it often happens that normal accommodation does not return for a week or a fortnight. By using a weak solution of atropine, it is very easy to cause mydriasis without paralyzing the accommodation; hence, for purposes of ophthalmic examinations, it is wise to use a minimum quantity of

atropine ; though, for therapeutic purposes, it is usually of extreme importance that the accommodation should be paralyzed. According to Mr. R. B. CARTER, the use of atropine is best accomplished by a solution in distilled water of the neutral sulphate, of the strength of two grains to the ounce. This solution, if the drug be pure and neutral, is absolutely unirritating to most eyes ; and a drop may be placed in the lower conjunctival fold, near the outer canthus, two or three times a day. For the purpose of making the application, there is nothing better than a goose-quill, cut to a blunt scoop. Should it cause pain, the atropine is either adulterated or the individual suffers from an idiosyncrasy. Atropine discs are also sold, which are convenient. Mr. WM. HARDMAN (*Lancet*, November, 1876) gives the method he prefers as follows : " I wet the point of an ordinary mounted needle by touching the tongue with it, and then dip it into coarsely-powdered atropine ; a small quantity adheres, and this is gently put inside the lower lid, and left there. The quantity I used is a small portion, about the size of a small pin-hole in paper ; a little more or less is of no moment. No unpleasant effects have followed in any of the twenty-one cases in which I have used this method, although in several of them it was applied to both eyes. The form of atropine I use is the sulphate."

The value of atropine in almost all diseases of the eye is incalculable. It diminishes photophobia and blepharospasm ; it lessens inflammation by contracting the ciliary vessels ; it weakens intra-ocular pressure ; and it causes sufficient local anæsthesia.

Belladonna, in extract or tincture, is still occasionally employed, although atropine has generally the preference.

Bismuth is occasionally chosen as a local application in chronic conjunctivitis and granular lids.

Boracicum Acidum has been strongly advocated in both acute and chronic inflammatory conditions, by Dr. S. THEOBALD, of Baltimore. (*Pamphlet*, 1880.) He uses a solution of gr. iv to aquæ dest. f. 5j. It should not be stronger, nor should it be applied more than twice a day, as some irritation may follow. He has succeeded remarkably well in many cases of conjunctivitis, keratitis, pannus, etc., with this. Its influence is sedative or anodyne.

Carbolicum Acidum. Dr. J. J. CHISHOLM, of Baltimore, (*Virginia Medical Monthly*, Dec. 1877,) has used this agent extensively in eye surgery. It is his sovereign remedy for all warty formations about the eyelids. He also employs it in granular lids and in episcleritis, or subconjunctival deposits. He uses the pure liquid acid. The pain of the application, though severe, lasts but for a few minutes.

Carbonicum Acidum has been used as a local anæsthetic in painful diseases of the eye.

Chloral Hydras, as a neurotic and a simple hypnotic, is invaluable. In many ocular affections, where we find wakefulness or restlessness, unassociated with pain, and due perhaps to mental worry or anxiety, chloral hydrate acts like a charm; and in such cases we should not fail to make use of this most valuable drug.

Chloroformum. According to Sir J. V. SIMPSON, a few drops of chloroform evaporated on the palm of the hand, close to a photophobic eye, will enable it to bear the light without pain.

Cocaine has found in diseases of the eye one of its widest fields of usefulness as an anæsthetic. Instilled into the eye, a two to four per cent. solution quickly renders the parts void of sensation, and cauterant applications and small cutting or puncturing operations can easily be performed. Especially is it valuable in removal of foreign bodies, the sensitiveness being quickly overcome, and the foreign body manipulated by the instrument without fear of paining the patient.

Copaiba. Mr. A. R. HALL has extolled the value of this substance in diseases of the conjunctiva and iris. (See page 693.)

Cosmoline, or *unguentum petrolei*, has been very successfully employed as an excipient in ointment for the eye. It is perfectly homogeneous, bland, and unalterable by heat and exposure.

Croton Chloral has been highly praised for its power in relieving ophthalmic neuralgia and irritability of the eyeball. Severe photophobia may be promptly relieved by the administration of gr. v-xv. thrice daily. Mr. BADER, of Guy's Hospital, thinks these good effects, however, are limited to young people, and particularly to cases of syphilitic corneo-iritis. The disagreeable taste of the medicine is a bar to its exhibition.

Cupri Sulphas is an indispensable local stimulant in chronic conjunctivitis, etc. The pain its application causes may be greatly lessened by sprinkling a little calomel over the parts touched, a few minutes after the application, or even immediately. (Dr. CARL PICK.)

Daturine. In 1861, Dr. JOBERT (de Lamballe) proposed the substitution of the alkaloid of the *Datura Stramonium* (daturine) as a mydriatic instead of atropine. He concluded that daturine was three times as strong as atropine; that its instillation into the eye caused no pain or confusion to vision, and that its effects were more constant than those of atropine, and its action more persistent. Dr. FANO has published (*Journal d'Oculistique et de Chir.*, August and September, 1875,) numerous observations illustrating the employment of daturine as a mydriatic. The instillation of a solution of daturine (1 part in 600) causes, he says, dilatation of the pupil in twenty-five minutes, and

this, too, in some cases of keratitis, in which atropine has failed to produce any effect.

Duboisine, the alkaloid of the Australian plant, *Duboisia myosporoides*, has been found to be a potent mydriatic, and has come into free use in Europe. It is as yet undetermined that it possesses qualities superior to atropine.

Ergotine. In conjunctival inflammation, Dr. PLANAT, of Nice, recommends from one to one and a half grammes of ergotine in twenty of glycerine or rose-water, of which from eight to ten drops are to be inserted in the eye every two hours. Where there is violent inflammation of the eyelids or distention of the conjunctiva, a rag wetted in this mixture should be left on the parts for some hours. In general, two or three days suffice for the subdual of the most intense blepharo-conjunctivitis. Dr. PLANAT has employed the ergotine in this way, with invariable success, for several years past. (*Bull. de Therapeutique*, 1878). Dr. A. S. CAMPBELL uses f.ʒj of the fluid extract to f.ʒvij of water as collyrium. (*Trans. Med. Assoc. Georgia*, 1880.)

Eserine. The attention of ophthalmologists has been called to the value of the extract of the Calabar bean, and its alkaloid, eserine, by various writers. Dr. A. WEBER (*Graefe's Archiv.*, Bd. XXII.,) states that the sulphate of eserine is ten to fifteen times more powerful than the extract. One drop of a one per cent. solution of eserine begins, after five minutes, to develop its effects upon the ciliary nerves, and produces, within twenty minutes, an extreme contraction of the pupil, which lasts ten hours. He believes that Calabar ought to be substituted for atropine in all those affections of the cornea which call for a diminution of the pressure upon the posterior surface of the cornea. These include keratocele, conical cornea, old maculæ corneæ, and especially in deep and progressive ulcerations, either in the centre or at the margin of the cornea, as they occur in old and debilitated persons, or in children in connection with blennorrhœal conjunctivitis. In these cases the Calabar achieved its most brilliant triumphs; it prevented the perforation of the ulcer; it guarded against hernia of the iris and the subsequent staphylomatous expansion of the cornea; it checked the destructive progress of the ulceration, and caused the ulcer to rapidly fill up and cicatrize; and it accomplished all this without the aid of bandages or any other means, except the cauterization of the blennorrhœal conjunctiva. While highly lauding the Calabar for its excellent effect upon *deep* ulcers in the cornea, WEBER states that he could not recommend its use in *superficial* and vascular ulcerations of the cornea. Here the good effect of atropine with a proper bandage remains unquestionable. Prof. GUBLER states that the disturbances of vision which succeed acute and sometimes chronic dis-

eases, and which are due to consecutive paralysis, characterized by asthenopia and debility of the muscles of the eye, may be treated successfully by Calabar bean. In asthenopia, a few drops of solution of sulphate of eserine (gr. $\frac{1}{100}$ to $\frac{1}{200}$) put into the eye, will render the vision quite distinct in an hour or two. In presbyopia also, Prof. GÜBLER has applied eserine with advantage. He has found eserine to be of extreme value in retarding the advance of presbyopia. (*Gaz. Hebdomadaire*, February 4th, 1876. Dr. WECKER has spoken of its value in suppuration of the cornea following the extraction of cataract. As soon as the edges of the wound grow hazy, the aqueous humor turbid, and the secretion of the conjunctiva is increased, the wound to its entire extent is reopened with a fine spatula, in order to draw off all the aqueous humor. Eserine is instilled every hour or thirty minutes, and the eye washed frequently with a warm solution of carbolic acid (one part to one thousand parts of water).

Gelsemine has been recognized as a valuable addition to the drugs which have a specific effect on the eye.

Glycerinum is used as an ingredient in ophthalmic plasmata.

Grindelia Robusta. This plant has been lauded as a specific in iritis, no matter from what cause. It is given internally, f.ʒj of the fluid extract four times a day; and locally, cloths wet with a solution of one part of the fluid extract to four of water. (HENRY M. FISKE, *Pacific Medical and Surgical Journal*, August, 1875.)

Hydrargyrum. The various preparations of mercury are extensively employed in ophthalmic therapeutics. The *chloridum corrosivum* is used in solution in purulent ophthalmia by Professor BEDFORD (F. 1067), and by Dr. TURNBULL in keratitis (F. 1075.) The *chloridum mite* may be insufflated as a dry powder in corneal ulcer (page 696): internally it is constantly employed to produce the constitutional effect of the drug in syphilitic and general iritis. The *oleate* is highly extolled in blepharitis, tinea tarsi and similar affections. The *oxidum rubrum* and *sulphas flavus* are invaluable in numerous combinations for various forms of ophthalmia. (See formulæ above.) In fine, as has been lately remarked by a specialist in this department, Mr. TALFOURD JONES, "mercury, by many, is supposed to have gone out of fashion, but ophthalmologists know better than to discard so valuable a remedial agent." The late Dr. ANSTIE believed mercury to have some special elective affinity or special action upon the parts which are supplied by the fifth nerve. It probably does exert a more marked influence upon the ocular tissues than upon any others. It must ever be one of our most potent and useful remedies.

Hyoscyamine has been used successfully as a mydriatic by Dr. PEILUEGER, of Lucerne.

Iodum, as a stimulant and counter-irritant, has frequent applications in the therapeutics of the eye.

Iodoformum is often useful in granular lids, phlyctenular and pustular ophthalmia, corneal ulcer, keratitis, blepharitis, etc. It should be reduced to very fine powder and dusted freely over the affected surface, or mixed with three parts of *unguentum petrolei*. It should not be used in acute inflammatory conditions.

Morphine is indispensable, and may be used in any of the usual manners. Mr. R. BRUNDENELL CARTER very truly says that "no eye will get better whilst it is acutely painful, so that acute pain must always be subdued as a condition antecedent to recovery." For the relief of acute pain, we have no remedy comparable to morphine, and it should be freely used.

Oleum Ricini. Dr. RINGER observes that a drop of castor oil introduced into the eye will often allay pain and intolerance of light produced by a fine irritant, such as sand.

Opium. Tincture of opium and solutions of morphia dropped into the eye cause smarting, redness, and slight inflammation of the conjunctiva. Such stimulation sometimes improves the condition of the membrane. Their uses are, however, chiefly internal, to relieve pain, or by hypodermic medication. There are certain forms of iritis in which the acuteness of pain is a very prominent symptom; and it was chiefly in cases of this class that the late Mr. ZACHARIAH LAURENCE succeeded, some years ago, in bringing about a cure by the use of large doses of opium or morphine alone. He kept his patients in a state of semi-narcotism for several days, or until all symptoms of acute inflammation had subsided.

Phosphorus has been suggested for the dispersion of corneal spots. (Page 696.)

Physostigma and *Physostigmine*. The uses of the Calabar bean have been discussed under *Eserine*.

Pilocarpine has been used as a myotic by various oculists. Its results differ from those produced by eserine sulphate, in the facts that less conjunctival irritation, less supra-orbital pain and less spasm of the accommodative power seem to be induced, while the contraction of the pupil and the temporary myopia correspond in degree with those following the use of eserine. In these respects pilocarpine offers advantages over eserine.

Plumbum. Various preparations of lead are valued in affections of the eye. Of the *carbonate*, $\frac{5}{11}$ to $\frac{3}{5}$ of simple cerate is an excellent unguent in persistent swelling and redness of the lids (blepharitis). In weakness and irritability of the eyes, painting the exterior of the lids many

times daily with a weak solution of the *subacetate*, grt. j to aquæ f. ʒj, followed by anointing with cold cream at night, is often successful. (HARTSHORNE.) As a collyrium, the *acetate*, gr. ij–iv to aquæ f. ʒj, is very extensively employed.

Quinine, in weak solution, gr. ij to aquæ f. ʒj, is an excellent wash for slight conjunctivitis. When required internally, Mr. R. B. CARTER recommends :

1095.	R.	Quininae sulphatis,	gr. j	
		Ferri et potassii tartratis,	gr. ij	
		Morphinae sulphatis,	gr. ʒ.	M.
		For one pill.		

Of this combination he says : “ I have also found this formula to be of the greatest possible value in many cases of eye-disease in which local changes were progressing too rapidly to be overtaken by the use of a grain or two of quinine twice or thrice a day as a ‘ tonic,’ but in which they were promptly arrested when the patient was brought under the influence of the specified combination.”

Salicylicum Acidum. Dr. LEONARD WHEELER has urged the value of this remedy in iritis. (*Boston Medical and Surgical Journal*, February, 1877.) He uses it internally in the following formula :

1096.	R.	Acidi salicylici,	ʒv	
		Sodii bichloratis,	ʒiv	
		Aquæ,	f. ʒvj.	M.

One or two teaspoonfuls hourly for several hours at the onset of the attack.

Sassafras Medulla, steeped in water, gives a soothing, glutinous liquid, much employed as a local emollient in inflammation of the eyes.

Sodii Benzoas. It is said, in the *Lyon Medicale*, March 7th, 1880, that Dr. DOR has used the benzoate of sodium with great success in the purulent ophthalmia of infants, and also in gonorrhœal ophthalmia, recovery taking place in a few days, without any opacity being left. He kept iced compresses constantly to the eye. The benzoate of sodium was employed in a twenty per cent. solution, and tannin in a ten per cent. solution, ten drops being instilled every three minutes. All secretion which issued from the eye was removed by means of a wash consisting of a hundred per cent. solution of the benzoate.

Sodii Biboras. Borax is esteemed a useful addition to moderating astringent collyria ; gr. x to aquæ camphoræ f. ʒj.

The following mixture is a grateful and slightly astringent collyrium in cases of granular lids :

1097.	R.	Sodii boratis,	gr. v–x	
		Sodii carbonatis,	gr. v	
		Aquæ camphoræ,	f. ʒj.	M.

Sodii Chloridum. Washing the eyes daily with a solution of common salt, $\bar{3}j$ to Oij, is of service when weak and irritable.

Stramonium is principally employed through its alkaloid, daturine, which see.

Strychnine, by hypodermic injection, has been used very successfully in amaurosis and amblyopia (above) ; also in ptosis, and blepharospasm, and entropion.

Tannicum Acidum is one of the most valuable astringent, non-irritating topical applications.

Terebinthinæ Oleum is used as a rubefacient.

Zincum, in various forms, is in frequent use. The *oxide* is an ingredient in numerous soothing unguents. A solution of the *sulphate*, gr. ij–iv to aquæ f. $\bar{3}j$, is the usual strength. It may be advantageously combined, as :

1098.	R.	Zinci sulphatis,	gr. iv.	
		Morphinæ sulphatis,	gr. ij.	
		Atropinæ sulphatis,	gr. j.	
		Aquæ rosæ,	f. $\bar{3}j$.	M.
For a collyrium.				

Bandaging. In many diseased conditions of the eye, it becomes necessary that the movement of the lids be restrained. For this purpose, oculists employ the “compressive bandage.” This is composed of a small piece of fine linen to cover the lids, some carded cotton-wool for padding, and a roller, about an inch and a half wide and nearly two yards long, formed of any fine elastic material, but preferably either of what is called “water-dressing bandage” or of flannel gauze. The free end of the roller should be placed on the forehead, over the affected eye, and the first turn should be made across the forehead and round the head horizontally, so as to secure the end. When the roller reaches the forehead over the sound eye for the second time, it should be inclined downwards, carried under the lobe of the ear, round the occiput, under the lobe of the second ear, and then upwards across the face, over the affected eye, to the forehead. Before the roller is brought over the affected eye, the small piece of linen should be placed upon the closed lids, and all the hollows of the orbit should be filled and padded with the cotton-wool, in sufficient quantity to allow the roller to exert distinct but gentle and uniform pressure on the parts beneath. When the roller reaches the forehead it should be secured to the horizontal turn with a pin, and then a second horizontal turn all over will complete the application. By varying the quantity of wool and the degree of tightness of the roller, any desired amount of pressure may be exerted by this bandage, which, if carefully applied, is very little liable to be displaced. Too much care cannot be taken in filling the orbital hollows, and in so distributing the

wool that its pressure may be uniform; because if a bunch of wool were simply applied to the lids over the convexity of the globe, and then bound tightly on, the effects of such a proceeding might often be disastrous. (CARTER.)

Blisters applied to the temple, behind the ear, or to the nape of the neck, are useful derivatives in inflammatory and painful affections of the eye.

Cold, in the form of ice and iced water, is much used in Europe for inflammations of the eye. Pounded ice may be suspended from the frontal band in a rubber bag over the organ.

Collyria. The following general remarks may be made on eye-washes and their employment: *Cautions*. 1. The stronger collyria are often unnecessarily employed, and are capable of doing mischief. 2. Collyria so strong as to produce pain tend, in the opinion of oculists, to induce subsequent chronic inflammation. 3. Those containing *lead* or *nitrate of silver* are never to be used when ulceration of the cornea exists, as they are apt to leave a permanent opaque cicatrix. 4. Those containing *nitrate of silver* sometimes give a blackish or bluish discoloration to the conjunctiva. Collyria are astringent, (alum, borax, tannin, acetate of lead, etc.,) emollient, (sassafras pith, flaxseed, slippery elm,) stimulant, (weak solutions of sulphate of zinc or copper, nitrate of silver, vinum opii, etc.,) sedative, (weak solutions of atropine, extract of belladonna, hyoscyamus or stramonium, solution of subacetate of lead, etc.,) or escharotic, (saturated solutions of nitrate of silver, sulphate of copper, alum, etc.) The proper use of ordinary collyria, especially in children, is not sufficiently attended to. A simple and efficient way is to place the child, with its arms straight by its sides, upon a shawl or on a long towel, and then swathe it around a few times in this, leaving only its head out. So swathed it cannot move, and one person, unassisted, can do all that is required to the eyes. The eyelids being now gently separated without pressing on the eyeball, the discharge should be wiped away, and the eyelashes cleansed with tepid water and a small piece of rag, which should be immediately burned. Next the conjunctival pouch under the upper and lower eyelids should be carefully syringed out with tepid water; for this a common pewter squirt will do. When the pus is thoroughly removed, some of the collyrium should be dropped into the eye, and diffused beneath the eyelids by moving these lightly over the cornea, or it may be injected under them with the squirt. After this the eyelids are dried, and a little simple ointment is smeared along their edges, in order to prevent the eyelashes becoming glued together.

Counter-irritation, by rubbing aqua ammoniæ over the temples, by tincture of capsicum, tincture of iodine, etc., is often available to relieve pain and the sense of tension.

Electricity has been tried in a number of diseases of the eye. Its chief successes have been in paralysis of the muscles of the eye, in asthenopia with hyperæsthesia of the retina, (for which complaint Drs. BEARD and ROCKWELL say electro-therapeutics promises more than for any other disease of the eye,) amblyopia, blepharospasm and ptosis. Dr. BROWNING, of Australia, has been most successful in treating a case of *albugo* with leucomatous patches in both eyes by galvanism. The patient, a little girl of about fourteen years, had been suffering about twelve months. The *modus operandi* consisted in using a mild current of four cells, the negative rheophore, attached to a sponge, being applied over the closed eyelid, the positive placed behind the ear, the continuous current lasting from two to five minutes. This treatment was continued twice a week for about three months.

Heat is often of service. For this purpose small sponges may be employed, wrung out of hot water. VON GRAEFE was accustomed to use hot chamomile fomentations, and to apply them by means of little muslin bags, in which a few chamomile flowers were sewn up prior to being boiled. Each bag, as it was taken from the eye, was returned to the decoction to recover its temperature. Whether water or some medicated decoction is employed, it must be kept hot during the whole period of application, either by a spirit-lamp or some similar contrivance, or by additions of fresh hot liquid from time to time. As a rule, neither heat nor cold should be applied to the eyes continuously for any long time; an hour or a half hour a day will usually be enough.

Lecches are frequently called for to reduce congestion and inflammation. They may be applied to the temples or behind the ears.

Setons in the ears or the nape of the neck are too much neglected by many ophthalmologists. In chronic cases, they often bring about cures when all other means fail.

THE EAR.

ECZEMA OF THE AURICLE.

In cases of children Professor GRUBER has found that both glycerine and cod-liver oil, applied on pledgets of charpie, and bound firmly to the eczematous auricle, are of great value.

Dr. BURNETT recommends the following powders:

1099.	R.	Florum zinci,	3ij		
		Aluminis,			
		Amyli,	āā	3j.	M.
For a powder.					

1100. R. Zinci oxydi, ℥ i-iv
 Amyli, ℥ vij-ix. M.
 For a powder.

Either of these may be dusted carefully and thoroughly over the diseased auricle, and the latter should then remain undisturbed as much as possible. If the heat and burning becomes very great, cloths steeped in cold water may be applied.

In the subacute form of auricular eczema, the organ may be treated beneficially by the application of *acetum cantharidis* to the sluggish parts, and then penciling the latter with the following:

1101. R. Olei cadini, f. ℥ ij
 Alcoholis, f ℥ j. M.

This will often prevent the disease from becoming chronic. Should, in spite of this, however, the disease pass to the chronic stage, the best local treatment is painting the diseased parts with *acetum cantharidis*, solution of *nitrate of silver* (gr. x to f. ℥ j), and the application of emollients, the head being kept dry and cool. The following ointment is also useful:

1102. R. Hydrargyri ammoniati, gr. x-xx.
 Adipis, ℥ j. M.
 To be rubbed in gently and thoroughly.

When the eczematous disease has invaded the auditory canal, and stimulation of the parts is needed, an ointment may be used composed as follows:

1103. R. Hydrargyri ammonio-chloridi, ℥ j
 Unguenti adipis, ℥ j.
 Apply with a camel's-hair pencil to the canal once or twice daily.

OTITIS.

DR. CHARLES H. BURNETT, OF PHILADELPHIA.

In *diffuse inflammation of the external auditory canal*, if seen in the earlier stages, from four to six leeches should be applied around the ear, in front of the tragus and under the auricle, close up behind the lobule. Subsequently warm water may be constantly and gently applied to the canal by irrigation or by instillation. To relieve the pain the following solution of morphine may be prescribed:

- | | | | |
|---|---------------------|----------------------|----|
| 1104. R. | Morphinæ sulphatis, | gr. viij | |
| | Aquæ, | f. $\frac{3}{4}$ ss. | M. |
| Ten drops, warm, in the ear, as required. | | | |

It may be used of this strength even in children without danger of narcotism.

The ear should be cleansed by gently syringing with pure warm water or soap and water.

When the discharge diminishes, but assumes a yellow color and dense consistence, with a tendency to the growth of granulations near the membrana tympani, strong solutions of nitrate of silver (gr. lx-c to f. $\frac{3}{4}$ j) should be applied every day or two. At home the patient may use the following:

- | | | | |
|--|------------------|---------------------|----|
| 1105. R. | Zinci sulphatis, | gr. v | |
| | Tincturæ opii, | ℥xx | |
| | Aquæ destillatæ, | f. $\frac{3}{4}$ j. | M. |
| Ten drops, warm, four times daily, in the ear. | | | |

To disperse the granulations and relieve the excoriated and swollen condition of the meatus, HINTON recommends:

- | | | | |
|------------------------|---------------------------|------------------------|----|
| 1106. R. | Liquoris plumbi acetatis, | ℥x-xxx | |
| | Acidi acetici diluti, | ℥iij-x | |
| | Liquoris opii, | ℥xx | |
| | Aquam destillatum, | ad f. $\frac{3}{4}$ j. | M. |
| To apply in the canal. | | | |

In the treatment of granulations, nothing is equal to *monochloroacetic acid*. By applying one drop of this, on a cotton holder, to the granulations every other day, they will rapidly disappear. They may also be brushed with *tincture of opium*.

In *acute catarrhal inflammation of the middle ear*, the general catarrhal symptoms should be relieved by a saline aperient and an active diaphoretic, and locally thorough inflation of the tympanum should be secured by using Politzer's air bag, the Eustachian catheter, or Valsalva's method. (See below, under Otorrhœa.) In little children we may employ, as suggested by Mr. HINTON, a piece of india-rubber tubing, through one end of which the surgeon may blow, while the other end is inserted into a nostril of the child. Should the pain become intense, leeches may be applied directly under the auricle. Anodynes may be given to allay pain. Where the fauces and Eustachian tube are inflamed, irrigation of the nasopharynx with warm water, slightly impregnated with salt or chlorate of potash, is beneficial. Thudichum's nasal douche may be employed.

Chronic catarrhal inflammation of the middle ear may be either moist or dry. Both varieties require constitutional treatment by such drugs as iodide of iron, iodide of potassium and bichloride of mercury. In the large majority of cases, local treatment should be rather to the nares and pharynx than to the tympanum. Irrigation by means of the nasal douche is very important. In cases of swelling and narrowing of the Eustachian tube, inflation is indicated.

DR. EUGENE H. TRIQUET, OF PARIS.

1107. R.	Cupri sulphatis,	gr. xv	
	Mellis rosæ,	f. ʒj	
	Aquæ rosæ,	f. ʒiij.	M.

Inject into the ear in acute catarrh, after the pain has been lessened by leeches and poultices.

1108. R.	Aloës socotrinæ,		
	Scammonii,		
	Gambogiæ,	āā	gr. xv.
	Tragacanthæ,		q. s. M.

Divide into fifteen pills. Two in the evening, several times a week, in the otitis of drinkers and smokers. Locally, emollient fumigations.

DR. BUCK.

This writer (*Am. Jour. of Otology*, January, 1880), sums up the relative merits of the different measures most commonly employed in the treatment of acute, circumscribed inflammation of the external auditory canal, including furuncles, as follows:

"Incisions cannot be depended upon to give permanent relief from pain or to materially shorten the course of the disease. They should therefore be only used after local blood-letting or hot applications have been faithfully tried without success, or where the appearance of the inflamed part indicates the probable formation of a collection of pus. The application of heat is preferable to local blood-letting by leeches. Of the various means at our command for applying heat to the inflamed part, the pleasantest, and at the same time the most effective, is the hot douche. In a few cases, however, the patient finds some form of dry heat more effective in relieving the pain."

OTORRHŒA.

DR. LAURENCE TURNBULL, OF PHILADELPHIA.

The first indication is to remove the secretions. This is accomplished by the syringe and a warm solution of borate or bicarbonate of soda, one drachm to a pint of hot water. When the patient has to care for himself, it is safer to employ CLARKE'S ear-douche, which acts by hydrostatic pressure, and is less apt to injure the delicate and sensitive organ.

If the pus is in the middle ear, and the opening in the membrana tympani small, the patient being unable to force the matter out by the *process of Valsalva*, (namely, a prolonged inspiration, and then an expiration with the nostrils closed,) even if the operation is frequently repeated, then the physician must employ *Poltzer's process*, which consists in this: Take a straight or slightly-curved tube, open at both ends, twelve or fifteen inches in length. This is introduced about half an inch into either of the anterior nares. The nares are then closed air-tight over the tube by gentle pressure with the fingers on both *alæ nasi*, prior to which the patient takes a small quantity of water in his mouth, which he swallows exactly at the same time that air is blown into the tube, which may be done by the operator having the other end of the tube in his mouth, or an india-rubber bag being attached to the tube, and compressed by the operator or assistant.

If antiseptics are needed to remove the odor, carbolic-acid solution, gtt. v-x to f.ʒj, may be employed. Almost all aural surgeons have agreed upon certain astringent substances which are safe and proper to use in this class of chronic cases; and among the number the sulphate of zinc is one of the best, being employed in about the strength of from one to three grains to the ounce of water. Stronger solutions of this salt are resorted to, and are all right and proper if there is no perforation of the membrana tympani; but if there is an opening in this membrane, no matter how small, it is safer, and gives less pain to the sensitive middle ear, to resort to the milder solution, not exceeding three grains to the ounce of water. The alum salts are apt to cause abscesses. Nitrate of silver, in this class of cases, is very objectionable, especially in very strong caustic solutions, unless immediately neutralized by a solution of common salt.

After the use of the astringent for four or five weeks, it is well to change it, or add a solution of two grains of *sulphate of copper* or *nitrate of lead*. If there are large granulations, the solid nitrate of silver may be applied on a probe charged with it; or a solution of sulphate of zinc, gr. xxx to f. ʒj. Constitutional treatment is demanded in case of the strumous or other dyscrasia.

M. MENIERE, OF PARIS.

This distinguished othologist says that in all cases of otorrhœa great attention must be paid to the constitution, to correct any dyscrasia that is present. In this lies an essential element of success in all instances. *Cleanliness* is the next point, which must receive the closest care. Nothing is better than pure warm water injected from an ordinary syringe with moderate force. In the early stage, and when the otorrhea is accompanied by sharp pain, the water may be medicated with a little opium: a leech or two may be placed behind the ear; and the whole ear may be covered with a linseed-meal poultice on which a little laudanum has been sprinkled. When the pain remains very intense, hypodermic injections of morphine are the most advisable means.

In cases of long standing, warm injections are always indicated. They may be of water, or weakly medicated as follows:

1109. R.	Aluminis,		
	Plumbi acetatis,		
	Zinci sulphatis,		
	Of either of these,	gr. j-iv	
	Aquæ tepidæ,	f. ʒj.	M.

A little piece of wool dipped in a weak solution of carbolic acid may be placed in the orifice of the meatus after each injection. Other lotions much used by M. MENIERE are:

1110. R.	Zinci sulphatis,	gr. xx-xxv	
	Glycerini,	f. ʒj	
	Aquæ,	f. ʒij.	M.

And:

1111. R.	Plumbi acetatis,	gr. x-xv	
	Aquæ,	f. ʒj.	M.

POLYPUS OF THE EAR.

Both nasal and aural polypi are said to be benefited by the administration of *teucrium marum*, or cat thyme. Dr. JOHN BARTLETT (*Chicago Medical Examiner*, August, 1872,) employs it as follows:

1112. R. Teucii mar. folior.,
Alcohol,
Macerate fourteen days.

$\frac{3}{4}$ i
f. $\frac{3}{4}$ x. M.

Apply locally to the polypus, and also take a few minims internally daily.

This writer reports several cases of aural polypi, one being himself, who have been cured by this remedy.

Dr. W. W. SEELY, of Cincinnati, Ohio, (*Transactions Ohio State Medical Society*, 1872,) states that in aural polypus, where evulsion is not employed, he adopts this plan: After thoroughly drying the ear, cleansed of all discharge, he applies, on the point of a small probe, a minute crystal of *chromic acid*, seldom larger than an ordinary pin's head. If the polypus is large, and he finds he only has made a small impression, he applies it again the next day, and then waits three or four days, when usually a white mass of charred tissue will drop off. Another application then takes place. Great care is necessary in using the chromic acid, but with such care it is free from danger.

TINNITUS AURIUM.

In those forms of tinnitus dependent on inaction of muscles, or "paralysis of the intrinsic muscles of the ear," faradism seems to be a really valuable agent. Several cases have been treated in this way at the Central London Throat and Ear Hospital, by means of Stohrer's battery, with very marked and good results. The current may be applied either directly to the membrane or over the mastoid process. According to the experience of all practicing at this hospital, the latter method is quite as efficient as the former.

At a recent meeting of the Harveian Society, London, Dr. WAKES called attention to the value of *hydrobromic acid* in aural cases of the class under consideration; and in the *British Medical Journal* of

June 23d, 1876, he has narrated two successful instances of its use. Since then other practitioners have employed it with equally good results.

Gentle pressure exercised on the external carotids will occasionally relieve this symptom.

The late Mr. HILTON stated (*Questions of Aural Surgery*, page 292,) that he had "had more success with hydrochlorate of ammonium than with any other empirical remedy—especially more than with the bromide of potassium, of the efficacy of which he had seen very little evidence." As regards the empirical action of the hydrochlorate, it is chiefly indicated on account of its "high diffusion power" in those cases in which it is desired to administer "a food to the mucous membranes." (RINGER.)

DR. LAURENCE TURNBULL, OF PHILADELPHIA.

When the tinnitus arises from pressure of cerumen upon the membrana tympani, the treatment is simply to remove the cerumen by injections of tepid water or weak solutions of soda.

Another cause is the growth of stiff hairs within the meatus. By cutting these away with a curved scissors, the affection is relieved.

Tinnitus from adhesive mucus on the posterior surface of the membrana tympani, or in the middle ear, may be removed by the catheter or by a few blasts from Politzer's air bag.

Foreign bodies in the Eustachian tube, causing tinnitus, can generally be removed by reversing the action of the air bag, causing a suction of air from the tube; or the Eustachian forceps may be used.

In pulsating tinnitus, the result of some alteration in the blood vessels, anæmia, or excessive action of the heart, we must try compression of the temporal or carotid, or the exhibition of iron, aconite or digitalis, as indicated by the action of the circulatory system.

For excitement of the brain, causing subjective noises, bromide of potassium is usually efficient.

Tinnitus from nerve exhaustion calls for phosphorus, strychnine, and the galvanic current.

The presence of the aspergillus in the ear is another occasional cause.

NOTES ON REMEDIES.

Aconitum. Drs. BAYES and TURNBULL recommend aconite in otitis, and state that it quickly relieves the pain.

Alumen, as a local astringent application, has a variety of uses in aural therapeutics. (F. 1099, 1109.) Dr. J. J. CHISHOLM considers it the best desiccating powder known. He finds very few aural discharges, however chronic, that withstand its proper application. The method employed in using it is first to thoroughly cleanse the ear, then wipe dry the passage by means of a loose cotton swab made at the end of a match or special applicator; after which puff into the ear powdered alum, *filling the drum cavity with it*. The very first application will often indicate a diminished discharge at the end of twenty-four hours. The ear is then washed out, and the alum powder again applied. This treatment is renewed once a day until the discharge is so reduced that the powder blown into the ear continues dry upon its exposed external surface. If it has crusted in the ear, it may be left for days as a hard mass, giving no pain and causing no annoyance.

Aqua Calcis, on account of its astringent quality, is used as a wash in discharges from the ear. It is of most service when some active inflammation is still present. (RINGER.)

Aqua Pura.—In ear-ache, Dr. BUDD, of New York, recommends that water, as hot as the tongue can bear it, be poured into the ear. Warm water is the best of all substances for cleansing the ear.

Argenti Nitras, in weak solution, is used for injections.

Atropinæ Sulphas, gr. iv. to aquæ f.ʒj, is an excellent remedy in otitis. A few drops of the above solution instilled into the ear, and some leeches to the mastoid process and in front of the ear, will promptly break up an acute attack. The recumbent position and perfect rest should be enjoined.

Carbolicum Acidum. Dr. PAULSEN, in the *Monats-schrift für Ohrenheilkunde*, No. 2, claims to have met with excellent results in the treatment of otorrhœa, uncomplicated by caries or large polypi, by means of a mixture of carbolic acid or olive oil, ten parts of the former to one hundred of the latter. He has found it much more effective than astringents or other methods which he has tried, and the combination of the acid with the oil was much better than the acid with water. His method of application is to cleanse the ear thoroughly by cotton or a probe, avoiding syringing unless it is absolutely necessary, and then dipping a tampon of cotton in the solution, to apply it to the secreting surface and there leave it till the next day, when the same process should be repeated. In this way he has succeeded in relieving obstinate otorrhœas, even when complicated by small granulations.

Chloral Hydras. Dr. A. LUCÆ, in the *Berliner Klinische Wochenschrift*, 1872, recommends that from ten to thirty drops of a mild solution of chloral be introduced into the middle ear by means of the Eustachian catheter and air-douche. A severe but short reaction generally fol-

lows. In the best cases an improvement of the hearing is noted after the second application. If no improvement is seen after the twelfth application, we may expect none from the use of this remedy. In ten per cent. of all cases the improvement was marked; in twenty-five per cent., slight; and in sixty-four per cent. no improvement occurred.

Cocaine is to be valued as an anæsthetic for minor operations about the ear.

Cupri Sulphas is a valued astringent. (F. 1110.)

Digitalis is occasionally useful in tinnitus.

Glycerinum is an excellent emollient addition to aural injections.

Hydrobromicum Acidum has been successfully employed in tinnitus aurium. (Page 721.)

Iodum and its preparations have a wide field in aural diseases. In an article on the subject by Dr. DE LACHARRIERE, (*Annales des Maladies de l'Orville*, July, 1876,) he states that in otorrhœa, when the discharges have had a certain duration, when the secretion seems to have its origin from the surface of the periosteum, or even in the bony tissue itself, we should have recourse to iodine or its compounds. The author employs a solution of iodine, of which the following is the formula, and which he uses night and morning as an injection:

1113.	R.	Tincturæ iodi,	gtt. xxxv	
		Potassii iodidi,	gr. iv	
		Aquæ,	f. ʒ ij.	M.

Following subacute inflammation of the middle ear, simple engorgement of the ossicles has been observed. Left to itself, the effusion is rarely absorbed; the ossicles become less mobile, and this fixity shows itself outwardly by a great projection of the handles of the malleus. The hearing becomes more and more obtuse, and the patient suffers from musical buzzings of the most painful nature. This deafness is frequently observed in gouty people. Very often it is found useful to drop into the auditory meatus a few drops of the following solution:

1114.	R.	Potassii iodidi,	gr. iv	
		Aquæ rosæ,	f. ʒ j.	M.

These applications have sometimes caused a slight irritation of the auditory meatus, but they have also sufficed to bring about absorption of the morbid deposit and a return to the normal condition. Dr. L. TRUMBULL states that the best treatment of incomplete deafness after cerebro-spinal meningitis is by the internal use of the iodide with the bromide of potassium, and the application of mercurial ointment behind the ear.

Iodoformum. Dr. CZARDA recommends iodoform as a remedial agent in those cases of otorrhœa in which the tympanic mucous membrane is

thickened, swollen and hyperæmic—a condition which is due to chronic catarrh of the mucous membrane. Trachomatous growths of the mucous membrane, when small, may be treated with iodoform, but when they become large, palliative measures must be adopted, and in obstinate cases it may be necessary to resort to an operation. The iodoform is applied by blowing it into the tympanum. (*Wiener Med. Presse*, No. 5, 1880.) The following is the mode in which Professor ZAUPEL, of Prague, uses the iodoform: After having well cleansed the ears, a moderate quantity of the iodoform in powder is blown through a quill on the tympanum; later on, when the suppuration is diminished, a pallet of cotton coated with the same is introduced into the tympanum, and is left *in situ* three or four days. The cure is effected in from one to four weeks. The peculiar odor of iodoform can be masked by the addition of almond oil or tannin, or a few drops of essence of peppermint.

Plumbi Acetas is a favorite astringent. (F. 1106, 1109.)

Potassii Permanganas, in a weak solution, forms an excellent antiseptic and slightly stimulating wash. Dr. HOWE (*Transactions of the American Otological Society*, Vol. II., Part 3, p. 359), recommends a solution (from two to eight grains to the ounce of water) in otitis media purulenta chronica. A few drops are to be instilled into the ear twice a day, (after removal of the discharge by syringing with warm water,) and to be allowed to remain in five or ten minutes, if they cause no smarting or burning sensation. If decided inconvenience is produced, the solution is to be washed out sooner.

Salicin. Dr. E. H. JACKSON has found this a valuable agent in otorrhœa. (*Medical and Surgical Reporter*, April, 1876.) After the ear is thoroughly cleansed and a speculum adjusted, blow into it through a quill:

1115.	R.	Salicinæ,	gr. ij	
		Cal. magnesizæ,	gr. iv.	M.

and insert a small piece of cotton. Should the discharge be excessively offensive, the cotton can be wet with chlorinated soda, which will tend to allay the fetor. This process should be renewed every two or three days, observing well the effect, and varying the proportions of the medicine as demanded. In general, constitutional treatment is unnecessary, unless the otorrhœa depends on some dyscrasia.

Sodii Boras is occasionally used in injection.

Sodii Bicarbonas is used frequently in injections into the ear, to aid in the solution of impacted cerumen.

Strychnine. A one per cent. solution of nitrate of strychnine has been successfully used in nervous deafness by subcutaneous injection by Dr. R.

HYGEN, of Leipzig. He injects it twice weekly into the integument over the mastoid process, using no other remedy.

Tannicum Acidum, in solution or combined with glycerine, is an efficacious agent in otorrhœa.

Tiglii Oleum is used as a counter-irritant in otorrhœa.

Zinci Sulphas is a valuable astringent. (F. 1105.)

Local Blood-letting, by leeches to the tragus or wet cups over the mastoid region, is the most efficacious of remedies in acute inflammation of the middle ear.

Medicated Cotton-Wool. This is of great service in chronic purulent inflammation of the middle ear. The cotton is thoroughly washed, dried, and saturated with one of the following solutions: Borax, twenty per cent.; sulph. zinc, two per cent.; sulph. zinc, five per cent.; tannin, five per cent.; salicylic acid, five per cent.; alum, three per cent.; alum, five per cent.; ferri subsul., three per cent. The salicylic acid preparation has been found beneficial in purulent cases where there was an offensive odor. In cases where the polypoid granulations are a feature, one may use the ferri subsulphas. The meatus is syringed and dried, and the medicated wool is rolled loosely upon the end of the carrier, the diameter of the roll being usually a little smaller than that of the meatus, and about two or three centimetres long for adults. It is then gently inserted into the meatus down to the diseased parts.

THE LARYNX.

(*For Inflammatory Affections of the Larynx, see Vol. I., Diseases of the Respiratory Tract.*)

INTRA-LARYNGEAL GROWTHS.

MR. LENNOX BROWNE, F. R. C. S. E.

From his position as surgeon to the Central London Throat Hospital, this writer speaks from a wide experience in this class of new formations. Many of them, he believes, never require treatment, and if left to themselves, do not acquire a serious aspect. A large proportion will, if untreated, "frequently disappear spontaneously,

being subject, as they are, to slow atrophy and resorption." (VIRCHOW.)

Many of them will disappear or be reduced by appropriate local and constitutional medical treatment, especially when of recent occurrence. Except in the very rare and doubtful instances of a congenital growth, all these new formations originate as a direct consequence of hyperæmia, or, as VIRCHOW puts it, "as the expression of an inflammatory irritation, which affects the whole surface, though it does not give rise to the same results in all parts." When growths are present, there is not unfrequently considerable general congestion of the laryngeal mucous membrane. It is, therefore, most important that every practitioner should, in every case of hoarseness, examine the larynx of his patient at the very earliest date. Let him treat the hyperæmia when it first occurs, and he will also see a new formation, should one arise, at its very commencement, or at least on the first approach of symptoms of its presence. It cannot be too strongly urged that the cause of a hoarseness is not to be discovered by pressing down the tongue with a paper-knife and looking into the back of the mouth, and that a localized inflammation, ulceration or irregular formation within the larynx is not to be healed by swabbing the pharynx with a brush charged with a solution of nitrate of silver, or by pushing a probang similarly loaded down behind the tongue unguided by the mirror, in the vain belief that it is going into the larynx, when, in the one case out of ten in which it certainly reaches no further than the superior surface of the epiglottis, it as certainly finds its way down the gullet.

In addition to the use of general and topical remedial measures to reduce the hyperæmia, the practitioner should remove any cause likely to keep up irritation of the larynx, such as relaxed uvula, unsuitable occupation, or exposure to sudden changes of temperature; and rest of the voice should in all cases of hoarseness be strictly enjoined. The moment the least irregularity of the cord is visible, the practitioner should at once make mineral astringent applications to the spot daily, until there is diminution of the growth or ulcer, and then on alternate days, or less frequently, as may be required.

XVIII. THE TREATMENT OF NEW GROWTHS AND SCROFULA.

I. BENIGN GROWTHS.—*Angioma, Nævus—Fibroid and Fibrocystic Growths—Goitre—Lipoma—Lymphoma (Glandular Enlargement)—Warts and Corns.*

II. MALIGNANT GROWTHS.—*Cancer.*

III. SCROFULA.

I. BENIGN GROWTHS.

ANGEIOMA. NÆVUS.

For the treatment of this form of new growths, see page 387.

FIBROID AND FIBROCYSTIC GROWTHS.

Parenchymatous Injection.—In fibrous tumors, resolution may be brought about by the parenchymatous injection of various substances. Chief among these is *ergot*. The following formula is recommended:

1116. R. Extracti ergotæ aquosæ (SQUIBB),	gr. 200
Aquæ,	℥ 250
Stir, filter and add	
Aquam,	ad ℥ 300
Each minim represents six grains of powdered ergot. For an injection ℥ x-xx, daily or every two days.	

Iodine injections have been used largely in Germany with varying success. In this country they have, on the whole, been disappointing.

Internal Medication.—Here again *ergot* is much praised. It should be given in large doses, and not so very frequently. The addition of *belladonna* is believed by some to increase its good effect:

1117. R. Extracti fluidi ergotæ, f. ʒj
 Tincturæ belladonnæ, gtt. xx. M.
 This amount once or twice in twenty-four hours.

Or,

1118. R. Extracti ergotæ solidi (SQUIBB), gr. v.
 This amount in a gelatine capsule twice a day. It equals gr. xx of crude ergot.

The successful exhibition of *ammonii murias* in large doses, ʒj-ij, in a case of large fibrous tumor in the abdomen, is reported by Dr. F. W. HATCH, in the *Pacific Medical and Surgical Journal*, 1875.

It should be remembered that simply passing a well-waxed thread through many tumors, (hygromas, ganglia, cysts, lipomata, etc.,) and fastening the ends together and leaving it there, will cause their disappearance.

As to the value of electricity in these growths and in the fibromyomatous growths of the uterus in particular, the reader is referred to the gynæcological section of this volume. There are great differences of opinion as to the action and worth of this mode of treatment.

M. T. ANGER, PARIS.

In *mucous cysts*, as of the vulva, etc., this writer has obtained no satisfactory results from iodine, but reports favorably of *chloride of zinc*.

1119. R. Zinci chloridi, gr. x
 Aquæ destillatæ, f. ʒj. M.
 Twenty drops injected into the tumor.

A single injection is ordinarily sufficient to bring about a decrease of size, which, however, does not begin for four or five days.

GOITRE.

PROF. A. LÜCKE.

This author recommends injecting into the parenchyma of the tumor an alcoholic solution of *iodine*:

1120. R. Iodi, ʒj
 Alcoholis, f. ʒx. M.
 Ten to fifteen drops of this to be injected every ten days.

The puncture should be firmly pressed with the finger after the needle is withdrawn, and the wound is closed with adhesive plaster.

DR. MORRELL MACKENZIE, OF LONDON.

This eminent surgeon treats cystic goitre as follows: The cyst is first emptied with a trocar at its most dependent point. He then takes:

1121. R. Tinct. ferri chloridi,
Aque,

āā f. ʒj. M.

Of this, f. ʒj-ij is then injected into the cyst and the canula plugged, the iron thus remaining in the cyst. After seventy-two hours the plug is removed and the iron solution withdrawn. The plug is then re-inserted, and poultices of linseed meal are kept constantly applied for a few days, immediately over the cyst. In a few days suppuration is set up, and the plug is permanently removed, the canula, however, being allowed to remain. The duration of treatment is from three weeks to four months, according to the size of the cyst.

In fibro-cystic goitre, the cysts are treated in the manner above described, and the fibrous structure afterwards attacked with subcutaneous injections of iodine.

Dr. M. lays down the rules that any cystic goitre as large as a hen's egg calls for active treatment; that injections of iodine in this form are dangerous, because often followed by sloughing; and that extirpation with the knife is also dangerous, because of the hemorrhage.

PROF. JAMES SYME, F. R. S. E.

This author teaches that, with the exception of those rare cases where some energetic interference is peremptorily required, the best treatment of bronchocele is to *blister* the surface. Most surgeons dress the blistered spots with ointments containing iodine, or iodine combined with mercury. For his part, Professor SYME regards the blister itself as productive of nearly if not all the benefit, and therefore uses them without any other means or treatment. The headache which occasionally proves a distressing attendant of the disease, is sometimes much alleviated by the application of a few leeches to the temple from time to time.

Should the case cease to improve, or be obstinate from the commencement, the patient should be dissuaded from subjecting himself

to more severe experiments, unless his existence should be threatened by the swelling.

The plan of passing a *seton* through the tumor in order to excite suppuration and consequent diminution of bulk, is easily executed, and seldom leads to any serious consequences. Nevertheless, some fatal results have been reported, and the good effects of the practice have been but of partial extent.

In simple hypertrophy of the thyroid, injections of *ergotin* are generally successful. The procedure is by hypodermic injections of from six to ten minims of a solution containing ninety-six grains of ergotina to the ounce of distilled water. The injection is repeated two or three times a week for the space of from four to six months, when the gland becomes thoroughly hardened. The gland begins to shrivel with the stoppage of the injections, and very soon returns to its normal size. Ergotina is of no value in bronchocele, but only in cases of simple enlargement of the thyroid gland. The injection is attended with very little pain.

Iodoform has been tried by various Swiss physicians, but, on the whole, without satisfactory results. (See *Correspondenzblatt*, Jan., 1880.)

MOSETIG-MOORHOF (*Internat. Jour. of Surgery*, 1890,) has injected the soft goitres in his practice for some years with iodoform, and reports excellent results. He uses either of the following solutions for injecting, taking the most careful antiseptic precautions in making each injection:

1122.	R.	Iodoform,	1	
		Ether,	5	
		Ol. olivæ	9.	M.

Or:

1123.	R.	Iodoform,	1	
		Ether,		
		Ol. olivæ,	āā 7.	M.

The first injection is of fifteen minims, but may be considerably increased. Intervals of five to eight days should occur between injections; as a rule five or ten injections suffice for a cure.

The use of electricity has been widely advocated in the treatment of goitre, and with no little show of success. It is used both by skin application of the galvanic current, the positive pole on the neck, the negative on the tumor, or by electrolysis, in which case galvanic

needles are inserted into the tumor and its substance broken up by the current.

The dyspnœa with which goitrous patients are often affected can be greatly reduced by the following :

1124. R. Pulv. stramonii fol., 3ij
 Potassii nitratis, 3j
 Opii pulveris, ℥j. M.
 A teaspoonful to be burned in the room when required. (A. SHANNON.)

ARTHUR TREHERNE NORTON, F. R. C. S., OF LONDON.*

If the goitre arises from local causes, as the drinking-water, etc., the patient must change his residence or treatment will be unavailing. If anæmia is present, iron is demanded. In cases where the growth is not of long duration, treatment by absorbents, externally and internally, is generally successful. Mr. NORTON usually prescribes :

1125. R. Potassii iodidi, āā
 Ferri ammonio-citratis, gr. v
 Infusi quassiae, f. 3j. M.
 This amount at a dose.

For a lotion he prefers one containing *iodine* in proportion not sufficient to irritate the skin :

1126. R. Tinct. iodi, 3ss-j
 Glycerini, 3ij
 Aquæ, q. s. ad 3j. M.

This lotion has the advantage of not evaporating, while the iodine, being very small in quantity, is not irritating to the skin, and at the same time is readily absorbed into the part, because evaporation does not take place. It should be applied on lint, which should always be kept moist with the lotion; over the lint may be sewn a piece of oiled silk, and over this again a piece of velvet, which altogether hides the application.

The operative procedures which may be resorted to are: puncturing cysts, setons, injections, ligating the thyroid vessels, and extirpation. Mr. NORTON condemns the last two. Setons promote absorption, but he has never seen them bring about a complete cure. There is no danger in evacuating large and fluctuating cysts. There is but little danger in injections, though he had seen one case of death from their use.

**Affections of the Throat and Larynx.* London, 1875.

PROF. S. D. GROSS, OF PHILADELPHIA.

Wash the neck thoroughly every night with warm water and soap, and rub well in :

1127. R. Unguenti hydrargyri biniodidi, 3j
Cerati simplicis, 3vj. M.

The patient should also take, internally, liquor iodi compositus, gtt. viij, in sweetened water, thrice daily.

PROF. J. M. DA COSTA, PHILADELPHIA.

1128. R. Cadmii iodidi, 3j
Cerati simplicis, 3j. M.

Apply, by thorough friction, every other day.

DR. FRIEDERICH OESTERLEN, TÜBINGEN.

1129. R. Brominii, gtt. xij-xx
Adipis, 3j
Olei limonis, gtt. x. M.

Rub thoroughly over the swelling, from time to time.

LIPOMA.

As a local injection into the substance of adipose tumors, *alcohol* has been used by some surgeons. A certain amount of the latter should be made to enter the fatty growth through several apertures, allowing some days to intervene between each injection. The tumor then softens and fluctuates; and the operator should at that period incise the growth and empty it, by means of gentle pressure, of the oily liquid which has been formed. Febrile reaction is generally very slight. It is hardly worth while, in some fatty tumors, to subject the patient to numerous punctures and injections, which may be more or less painful, and crown all by an incision and kneading of the tumor.

The French surgeons, MM. DEBREUIL, CHASSAGNAC and others, prefer caustics to the knife in fatty tumors. The reasons they give are that the suppuration insures complete obliteration of the cyst; that it does not confine the patients to bed; and that they are less exposed to erysipelas, purulent infection and the like, than when operated on with the knife. They usually employ the Vienna paste.

As it is known that the fat of these tumors is characterized by the crystallization and separation of its elements, especially its margar-

ine, it has been suggested by Mr. JOHN GAY, F. R. C. S., (*Lancet*, June, 1873,) that subjecting the tumor to a high temperature would liquefy the fat and promote its absorption. He accordingly ordered immersion in hot water, 120° to 138° Fah., repeated as often as is safe or convenient, and by this plan has succeeded in removing a number of such tumors.

LYMPHOMA (GLANDULAR ENLARGEMENT.)

It is to be recalled that by far the majority of these glandular enlargements are merely the local manifestations of general conditions, as tuberculosis, syphilis, leukæmia, etc. With this caution the editor believes the chapter as included in former editions may be permitted to retain its previous position among new growths, only, however, as a matter of therapeutic convenience.

DR. MORRELL MACKENZIE, LONDON.

In glandular swellings of indolent character, this surgeon has found the hypodermic treatment with *acetic acid* the most useful to bring about resolution. The dilute acid is used, gtt. v-xx for one injection, gtt. vij-viii being an average dose. The injection should not be made more than once a week. The fluid should be injected well into the middle of the gland. If suppuration take place, the fluid should be drawn off with a hypodermic syringe or aspirator. The average duration of treatment by resolution is three months.

For treatment by destruction and suppuration, a solution of *nitrate of silver* answers the best. This solution should be of the strength of one drachm to the ounce, and not more than three to five drops to be used. Considerable interstitial destruction is generally produced after three or four injections, sometimes after a single injection. When pus forms, it should be drawn off as already directed. Treatment by destruction if successful, is rather more rapid than that by resolution, but induration of the outer portion of the gland sometimes follows the treatment, and interferes with its success. The treatment by pepsin and dilute hydrochloric acid he found to be rapid, but was twice followed by superficial sloughs of the skin, and for that reason he abandoned it. (*Medical Times and Gazette*, May, 1875.)

MR. CAMERON, DEPUTY INSPECTOR-GENERAL, INDIA.

This surgeon urges the treatment of chronic glandular swellings by repeated and deep *punctures* with a common lancet or small steel stiletto. The instrument should be held at right angles to the swelling and pushed down to the bottom. He has never seen any inflammatory or other bad symptoms produced by this operation, and he has often practiced it with brilliant success. He believes it would do well in fibrous tumors also. (*Lancet*, August, 1874.)

MR. FURNEAUX JORDAN, ENGLAND.

This surgeon employs *counter-irritation* to remove enlarged glands. The best locality for the counter-irritant is around or adjacent to the enlargement. Blisters or iodine may be employed. In enlarged cervical glands, a large patch of iodine irritation at the back of the neck, which may be prolonged below the glands, will, he states, certainly prove successful in a short time.

MR. S. MESSENGER BRADLEY, F. R. C. S., ENGLAND.

Injection with the *tincture of iodine* is largely employed by this surgeon. He has even succeeded in producing absorption of some encapsulated tumors situated on the salivary glands by this means. As a rule, two or three injections, gtt. v-xv of the simple tincture, are sufficient to effect a cure. He lays down the following rules as to its application:

1. *Cases to be treated by Iodine Injections.*—True hypertrophies of the cervical glands without scrofula; strumous hypertrophies of the cervical glands before they have broken down; hard, non-infectious lymphomata; all encapsulated tumors, as a tentative operation.

2. *Cases to be treated by Incision.*—Lymphatic tumors that have broken down into pus.

3. *Cases for Extirpation with the Knife.*—Strumous glands which form tumors riddled with soft patches, and resting on a base of suppurating cellular tissue, with a large area of blue skin; encapsulated tumors which have resisted the treatment by injection.

PROF. DEMARQUAY, PARIS.

1130. R. Unguent. hydrargyri,	3 iij
Camphoræ,	℥ij
Ceræ flavæ,	3 iss
Olei olivæ,	f. 3 iss.

Dissolve the wax and oil by heat, and when nearly cold add the camphor in powder and the mercurial ointment, and make a homogeneous mixture. A useful absorbent ointment for indolent tumors.

WARTS AND CORNS.

In treating a wart, *chromic acid* is a useful agent. In many instances it will blacken and kill the growth, the tumor sloughing away in the course of five or six days, leaving the resulting ulcer a perfectly simple one.

But this cauterant is not to be applied to the vascular kind of wart; on the contrary, if irritable, as it often is when brought to the notice of the practitioner, it should be soothed by gentle applications, after which it should be thoroughly removed by the knife or ligature. Especially when situated on the face, a wart cannot be too judiciously or carefully treated.

Professor SYME preferred to soften a corn by touching it again and again with acetic acid until the whole is scraped out, and then to apply nitrate of silver to the exposed surface of the cutis, so as to destroy its morbid secretory tendency.

For *soft corns*, he recommended astringent applications, such as that formed by mixing together equal parts of alum and the whites of eggs, which will often afford great relief.

The following applications for the removal of corns are of more or less popular use:

1131.	R.	Acidi salicylici,	gr. xxx	
		Ext. cannabis indicæ,	gr. v	
		Collodion,	f. ʒ ss.	M.

Apply with camel-hair pencil to corn twice a day for several days, followed by prolonged hot pediluvium.

And,

1132.	R.	Tr. iodi,	f. ʒ ij	
		Liq. ferri subsulphatis,	f. ʒ j	
		Aetheris,	q. s. ad f. ʒ j.	M.

Sig.: Paint in morning and evening.

SIR HENRY THOMPSON.

1133.	R.	Zinci sulphatis exsiccati,	ʒ iv	
		Acidi sulphurici,	q. s.	M.

The sulphate of zinc, previously dried, in order to deprive it of its water of crystallization, is mixed with a strong sulphuric acid to the consistence of a jelly, which is then applied by means of a glass rod or spatula. The parts surrounding the tumor to be destroyed are to be covered with a firm pomade, to limit the action of the caustic.

The caustic mixture thus obtained acts only on the skin deprived of its epidermis. The eschar is white, and ordinarily separates the fifth or sixth day. The advantages attributed to this caustic in the treatment of tumors are the following: 1. Energetic escharotic effect. 2. Rapidity of action. 3. Easy management. 4. No tendency to run. 5. Freedom from danger.

NOTES ON REMEDIES.

FOR BENIGN NEW GROWTHS.

Aceticum Acidum. Glacial acetic acid is very effectual in removing warty growths.

Alcohol, by hypodermic injection, has been employed in fatty tumors.

Ammoniacum. The *emplastrum ammoniaci* and the *emplastrum ammoniaci cum hydrargyro* are used as local stimulants and discutients to promote the resolution of *enlarged glands* and other indolent tumors.

Ammonii Murias, moistened and rubbed over warts, will usually cause them to disappear. It has been given internally to hasten absorption in other benign growths.

Arsenicum. Warts painted with Fowler's solution will generally vanish in a short time.

Argenti Nitras. In the *Boston Medical and Surgical Journal*, Jan. 6th, 1876, Dr. BIGELOW records two cases of formidable *erectile tumors* obliterated by the injection of a few drops of solution of nitrate of silver dissolved in water, the proportion being equal parts by weight. Parenchymatous injections of solution of nitrate of silver WILDE found to be especially serviceable in tumors of soft consistence, the strength of the solution being one grain to one ounce, and a considerable quantity being injected.

Belladonna. The growth of new formations is sometimes checked by the application of belladonna plasters or the hypodermic use of atropine.

Brominium is a favorite escharotic agent in the treatment of a variety of new growths. (F. 1129.) It is energetic and very painful; moreover, its fumes, if inhaled, are apt to produce a disagreeable irritation of the Schneiderian membrane.

Cadmii Iodidum is used as an inunction in goitre by Dr. DA COSTA. (F. 1128.)

Calcii Chloridum is valuable in strumous enlargements.

Carbolicum Acidum has been used as a parenchymatous injection in indolent tumors. A two per cent. solution is sufficiently strong. Undiluted, it may be applied with success to warts and similar cutaneous growths.

Chromicum Acidum, a solution of gr. c to aquæ f. ʒ j, may be applied with a glass rod to cutaneous growths, such as small polypi, warts, etc., just enough to saturate the growth, any superfluous acid to be removed, and the part dressed with dry lint.

Cocainæ Hydrochloras is frequently used as a local anaesthetic, for the removal or cauterization of small and slight new growths.

Conium, both internally and externally, has been used with benefit in enlarged glands and indolent tumors.

Ergota. Both in uterine fibrous and in vascular tumors ergot has been largely and successfully employed. Dr. WM. A. HAMMOND relates (*Archives of Clin. Surg.*, October, 1876,) three cases of the latter. He injected from half a drachm to two drachms fld. extract. ergot. at a time, at intervals of ten days. In none of these cases was there at any time the least evidence of inflammatory action from the injections; he therefore attributes the successful results entirely to the action of the ergot on the organic fibres of the vessels.

Ferrum. The tincture of the chloride is used by Dr. MACKENZIE in goitre (F. 1121); also in polypi (F. 1040.) A drop of the liquor ferri per-sulphatis on a wart will often disperse it.

Iodum is exceedingly valuable in goitre, etc. (See F. 1120.) Applied as tincture or ointment, it is one of the best resolvents known.

Nitricum Acidum. A drachm or two of nitric acid to a pint of water may be used as a wash to small warty growths, as venereal warts.

Plumbi Iodidum. Dr. SCHÖNFELDT prefers iodide of lead to other metallic iodides, on the ground that in small doses its action is not irritant. It does not disturb the organism, or produce salivation, like mercurial preparations. It may be given internally in doses of from two to three grains. From half a drachm to a drachm rubbed up with an ounce of lard forms a good ointment, and the addition of glycerine facilitates its absorption. In cases of lupus, syphilitic growths, nasal polypus and in cases of indurations, exudations and tumors he has employed the iodide of lead with success.

Plumbi Nitras is an extremely valuable and too little used agent in dispersing new formations.

Potassii Bromidum. An efficient cauterant in polypoid growths is the following:

1134. R. Potassii bromidi,
Acidi tannici,

āā gr. x. M.

Reduce to a mass by careful levigation.

The effect is prompt, but painful.

Potassii Iodidum, internally, excites the secretory functions and aids in the resolution of various forms of growths.

Salicylicum Acidum is recommended by Dr. GEZOW (*Pharm. Ztschr. f. Russl.*, 1879.) (See F. 1131.)

Electrolysis. The employment of electricity in the removal of new formations is one of the most important achievements of modern surgery. It has been used with brilliant success in erectile and fatty tumors, polypi and fibroids, and with advantage in goitres and ovarian tumors. For the particular methods and apparatus, special works on the subject must be consulted.

Galvanism. The use of galvanism as a surgical adjuvant has recently furnished important results in the treatment of vascular and erectile tumors, and some recent experiments encourage the hope that the necessity for that formidable operation, ovariectomy, may in some instances be superseded by this important agent.

Pressure. In many cases of benign tumors, judiciously applied, firm pressure is a most valuable auxiliary.

Puncture is highly commended by Mr. CAMERON. (Page 735.)

II. MALIGNANT GROWTHS.

Of malignant tumors there are two eminent examples, sarcoma and cancer. In many instances these are clinically confused under the term cancer, and both are, doubtless, equally amenable to general medical treatment—or, perhaps, it were better to say, equally unamenable. In the matter of pain, infiltration, discharge, etc., both are open to the same measures, the cancer being, however, the more frequent to require medical relief.

Where these growths are ulcerated and local measures are instituted, such disinfectants as bichloride of mercury, carbolic acid, permanganate of potash, chloride of zinc, and a host of others, may all be considered as suitable for employment. For the pain, local applications of cocaine, or the internal administration of opiates, is necessary. In general the measures suited for one, dealing exclusively with non-operative measures, may be applied to the other. Therefore, it has seemed unnecessary to insert in this new edition a separate consideration of sarcoma, but to permit to remain as a general example the chapter devoted to "Cancer" in the older editions. This caution is, however, necessary, that the efforts to eradicate sarcoma by means other than the knife are even more hopeless

than those put forth to destroy cancerous tumors. The caustics and allied measures in the following chapter are, therefore, not to be regarded as suited for the treatment of sarcoma.

CANCER.

In malignant growths the usual rule with most surgeons is to regard the knife as the only remedy worth serious attention; consequently, in systematic treatises, very little is said about local curative applications or internal remedies, and what is said is often in condemnation of them as useless, if not pernicious.

But there are unquestionably several common forms of semi-malignant new formation, capable of destroying life if allowed to progress, but which are curable by proper remedial measures, other than the knife. It is upon these that the quack "cancer doctor" builds his fame; and it is owing to the indifference of surgical teachers to their medical treatment that he gets the chance to do so.

Then there are cases of undoubtedly true malignant tumors which, under the use of caustics and internal medication, have disappeared, never to return. Indeed, it may be laid down as almost a positive result of surgical experience, that a cancer extirpated by the knife returns sooner than one removed by caustics. The suppuration attendant upon the latter seems to remove the remaining cancer cells, while incision leaves them to set up anew their destructive proliferation.

There are also cases where surgical interference is out of place. In some localities it is next to impossible; and where there are any distinct signs of a cancerous diathesis it is certainly vain to resort to the knife.

The pain of cancer is a most distressing and prominent symptom, demanding the most active measures to relieve it.

All these considerations should give to the therapeutics of malignant growths a more prominent position than has yet been awarded it.

The therapeutic treatment of cancer has been in three directions: by internal medication, by local external applications, and by injections into the substance of the growth.

Of internal remedies, *coniun*, lauded by STÖRCK, of Vienna, still

retains the first rank, in spite of theoretical objections to its efficacy. The best preparation is thought by some to be the freshly-prepared *succus conii*. (For formulæ see below.)

Condurango, which has fallen wholly into disfavor in this country, has recently received strong testimony in its support, in cancer of the stomach, from various German physicians.

The *phytolacca decandra* has been praised by some American physicians for its alleged power to prevent the development of cancer. Not only is the fluid extract given internally, but the inspissated juice of the leaves is applied in the form of a plaster at the same time, either alone or combined with chloride of zinc and opium.

Sir BENJAMIN BRODIE used to give his cancerous patients *liq. potassæ*, f. ʒj, *thrice daily*. Sir JAMES PAGET, in his "Clinical Lectures," says that he also has followed this treatment, often without effect, "but frequently it has given relief from the burning, aching and bursting pains which have been connected with the cancer." Sir JAMES considers it indicated in the gouty diathesis, and believes that Missisquoi water sometimes does good in a similar manner.

Sir ASTLEY COOPER was wont to attach importance to the exhibition of *ammonia*, especially in uterine cancer. His favorite prescription was :

1135. R.	Sodii carbonatis,	gr. xxx	
	Ammonii carbonatis,	gr. v	
	Tincturæ calumbæ,	f. ʒj	
	Infusi gentianæ compositi,	f. ʒiiss.	M.

This amount to be taken thrice daily.

Dr. WASHINGTON L. ATLEE, of Philadelphia, attaches value to the prolonged and even constant use of *arsenic*. After excision of the cancerous growth, this drug would seem to have a retarding influence on its re-appearance.

In *cancer of the stomach*, Dr. JAMES T. WHITTAKER, of Cincinnati, has reported apparently successful cases from the administration of *bisulphide of carbon*, gtt. ij-iv, in oil of sweet almonds, three times daily; but the improvement he noted may have been owing to the anæsthetic effect of the remedy.

For injections into the substance of the growth, *dilute acetic acid* has been used with unquestioned success in epithelial cancer. Pure *carbolic acid*, injected underneath the cancerous sore, is said by Dr. BARTHOLOW to limit the extension and retard the growth of the disease.

Dr. HASSE, of Berlin, injects *pure alcohol*, to which one per cent. of ether has been added; this he throws, not into the growth itself, but around its edges, thus obliterating the lymphatics. The injections are repeated once every week or every other week.

Dr. WYNN WILLIAMS, of the Samaritan Hospital, London, employs *bromine*, one part to three of pure alcohol, of which gtt. v-x are injected into the tissues by means of a long syringe with a platinum nozzle. The solution develops heat, and should be prepared some time before used. With it he claims striking success in *uterine epithelial cancer*. Dr. BENJAMIN RHETT, of South Carolina, has also used with success (*Charleston Medical Journal and Review*, Oct., 1874,) the following:

1136. R.	Brominii,	gtt. xij	
	Alcoholis,	f. 3j.	M.

Inject from four to ten drops into the growth, and touch the surface lightly with it.

DR. JOHN HUGHES BENNETT, LONDON.*

This author, in speaking of the rational treatment of cancer, states that its object should be retardation, and, if possible, resolution. To accomplish these, four means deserve consideration:

1. *Cold*.—The external application of cold is one of the most powerful means we possess for retarding cancerous growth. In cancers of the breast it may be applied by a caoutchouc bag filled with ice and suspended round the neck.

2. *Dryness*.—As moisture is essential to cell growth, if the part could be deprived of it, the proliferation must cease. This has been sought for by tying the arteries leading to the affected tissues. MAGENDIE and JOBERT reported several successful cases, where disappearance of the tumor followed, even in cases diagnosed as true cancer. The supply of blood, however, furnished by the anastomotic arteries has prevented the effective application of these measures. While external dryness can produce little effect, wet dressing and lotions should be avoided as hastening the development of the disease.

3. *Pressure*, applied externally to tumors believed to be cancerous, has certainly, in a number of instances, been successful in retarding, even in altogether removing them. RECAMIER and others claim quite a number of cures by this method. In order to secure its proper application, an apparatus has been invented by Dr. NEIL

**Cancer and Cancerous Diseases*. London, pp. 237, seq.

ARNOTT. It consists of a spring, an air cushion supported by a flat resisting frame or shield, a pad and two belts. The pressure can be graduated as desired. It gives great relief from pain, and is useful in ulcerated cases in restraining hemorrhage. In some instances it has brought about complete resolution.

4. *Locally*.—It has been observed that in some districts cancer is more frequent and runs its course with greater rapidity than in others. Observations of this kind may be turned to the profit of those who are able to seek change of climate.

PROF. ESMARCH, OF KIEL.

This very eminent surgeon read an important paper on the medical treatment of cancer in the Sixth Congress of the Society of German Surgeons (1877.) He expressed his opinion that the scrofulous and syphilitic dyscrasiæ predispose to malignant growths, and this furnishes a therapeutic hint. As regards the treatment of cancer, it is well known that many malignant growths are capable of cure by early and sufficient extirpation; but in very many cases the patients come too late to allow an energetic radical cure to be carried out. Dangerous tumors are often treated by insufficient means, and allowed to become malignant; and then the patients come to the surgeon, who is obliged, to his regret, to perform a difficult operation. What is to be done in cases no longer fit for operation? To tell the patients that nothing more can be done in the way of operation is to pronounce their death-warrant; but there ought to be a final remedy to be used in certain cases. LANGENBECK, of Göttingen, had under his care a woman with cancer, for whom he ordered arsenic. The woman, believing she could not recover, took the arsenic in large quantities, for the purpose of suicide; the result, however, was the cure of the disease. Cancer is essentially an epithelial growth; and the therapeutic action of *arsenic* on skin diseases indicates that it must have a special influence on the epithelial cells. Arsenic is also given to horses to make their skins smooth. Hence there is a reason for using arsenic in cancer; but it must be given in large doses to produce any result—even until symptoms of poisoning are produced. In this way Dr. ESMARCH has produced astonishing results in some cases of cancer. One woman who had a cancer of the lower jaw, too far advanced for operation, was completely healed by the use of arsenic. Modern experience of the action of arsenic in other maladies, encourages a trial of its action in cancer.

The reputation of arsenic in this disease is of old date; but Dr. ESMARCH has been led to employ it energetically in hopeless cases, and with surprising results. He showed the photograph of a woman who as a child was scrofulous. She had scrofulous glands in the neck, which, during her pregnancy, developed into a lupous sarcoma. Extirpation of the whole disease by the knife was impossible; Dr. ESMARCH therefore cut away the tissue of the face, and laid charpie soaked in chloride of iron on the remaining diseased portions; he then applied a powder of morphine and arsenic, with some calomel and sugar. A thick, leathery eschar was formed, after the falling of which, cicatrization soon took place. Another woman came into his clinic with cancer of the breast, in which adhesion to the ribs had taken place. Dr. ESMARCH prescribed arsenic internally, and, for external application, the powder above mentioned, to be applied daily; this she must at last have done by teaspoonfuls. In the next session she returned; all traces of the cancer had apparently disappeared, and she said that she had but slight pain.

Besides its destructive action on growths, arsenic is also an anti-septic. Dr. ESMARCH has also obtained some remarkable results in his practice from Canquoin's chloride of zinc paste and from electrolysis. In a case of small-celled sarcoma of the thigh, as large as a man's fist, *electrolysis* by a weak current, applied six hours daily, almost completely removed it; but the man would not wait. A year later he returned, without a trace of the tumor. There was one class of malignant diseases in which Dr. ESMARCH had obtained some remarkable results from the use of the iodide of potassium. These are *sarcomatous* tumors. Many of these may be the product of old and concealed forms of syphilis. Psoriasis of the tongue and rodent ulcer are also, at times, syphilitic products, and are greatly benefited by iodide of potash internally, and iodine ointment.

DR. A. WINEWARTER, OF GERMANY.

Certain malignant glandular degenerations have been successfully treated by this surgeon with *arsenic*. He states, in the *Medicinische Jahrbücher*, 1877, the following conclusions:

I. The treatment of both malignant lymphomata and leukæmia, by means of arsenic, is efficacious, since it induces a resorption of the hyperplastic glandular tissue.

II. Arsenic owes its favorable influence to its inherent power of inducing a process of decomposition in albuminous tissues, and especially glandular tumors, which makes resorption possible.

III. Moreover, the local effect of injection and the arsenical fever contribute to the diminution of the size of the tumors. Cures accomplished by arsenic may last for a year, and the recurring tumors are as susceptible to treatment as the primary. In malignant lymphomata the treatment by means of arsenic is unquestionably more efficacious than operation. Operative measures are to be accompanied by internal treatment in every case.

DR. MARSDEN, LONDON CANCER HOSPITAL.

This gentleman, after an experience of over six thousand cases of this disease, considers *arsenic* as superior to any other agent in cancer. He believes that with early treatment, nine out of ten cases may be cured. He recommends it in every form of cancer, except the cystic or colloid varieties—provided that the disease does not exceed four inches square in size—when removal by the knife appears to be the only remedy. Arsenic may be used in this way for cancers in every situation except the interior of the mouth or nose, localities where the nature of the remedy makes it dangerous. The formula used at the cancer hospital is the following:

1137. R. Arsenious acid, 3ij
Mucilage of gum acacia, f. 3j. M.

Mix into a paste too thick to run. This is to spread over the entire surface of the cancer, provided this does not exceed one square inch in size; a bit of dry lint is then placed over the sore, in order to absorb any excess of paste. In the course of an hour the lint becomes dry and hard, and adheres firmly to the parts.

In the course of twenty-four hours some inflammatory action is visible in the tissues immediately adjacent to the cancer. There is often also some pain, but this is not usually severe, and lasts but for a day or two. After the lapse of two or three days, according to circumstances, bread-and-water poultices, changed every few hours, are to be constantly applied over the sore. A distinct line of demarcation is usually to be seen by this time, and the slough gradually separates and comes away, leaving a healthy, cup-like depression, varying in depth and size according to the mass removed. Granulation proceeds rapidly, and the case is then treated as a simple ulcer. The slough separates at periods varying from six to thirty days, according to its size. The disease usually comes away entire with the slough; but, where this is not the case, the paste is to be applied to the remaining portion, as in the first instance, every second or third day, till the desired effect is produced.

Dr. M. KUHN, who has also used the arsenical pastes with advan-

tage, directs attention to the importance of applying them, not directly to the surface; but to the substance of the growth. He advises the previous application of caustic potash, so as to produce an abraded or raw surface, which can then be acted on directly by the arsenical agents. It is to the want of adopting this preliminary step that Dr. K. attributes the failure of arsenic in many cases. (*Medical and Surgical Reporter*, January, 1870.)

MR. C. H. MOORE, MIDDLESEX HOSPITAL, LONDON.

In the article on "Cancer" by this gentleman, in Holmes' larger work on surgery, he commends the *tinctura ferri chloridi* internally. "Iodine, opium, and especially lead," he adds, "appear the most effective in retarding the growth of the tumor."

1138. R. Plumbi iodidi, āā 3ij
 Pulveris opii, 3ss
 Ferri sulphatis exsiccati, q. s. M.
 Glycerini,

To make a convenient paste. Apply to the swelling, so that it will thoroughly moisten the surface.

For tender and painful ulcers he advises the following:

1139. R. Fresh stramonium leaves, ½ lb.
 Lard, 4 lbs.

Mix with gentle heat for some time and strain. Spread on cotton wool and apply to the part.

DR. LANDOLFI, OF NAPLES.

This practitioner has obtained a wide celebrity through the use of a preparation which he claimed to be a specific cure in cancer, providing that the growth is accessible, and that the system is not already too deeply implicated in the cancerous cachexia. The formula he usually employed, although it differed somewhat in the relative proportion of the ingredients, was the following:

1140. R. Zinci chloridi,
 Auri chloridi,
 Antimonii chloridi,
 Brominii chloridi, āā 3j
 Farinæ, }
 Aquæ, } q. s. to form a thick paste.

To be applied on small portions of linen to the ulcerated surface.

The essential element he looked upon as the *chloride of bromine*, the quantity of which he often increased to 3ij or 3iij. The chloride of zinc he used chiefly for its hæmostatic qualities, and increased

this ingredient when there was a marked tendency to hemorrhage. The pain of the application is considerable, and must be allayed by opiates. The application need not remain on more than twenty hours, and may then be replaced by an emollient cataplasm. About the eighth day the eschar should become detached and leave a healthy, granulating surface. If any points remain of less satisfactory appearance, or still presenting cancerous alterations, a little of the caustic paste is again to be applied.

Internally he believed it best, though not in all cases indispensable, to administer the chloride of bromine internally in doses of $\frac{1}{16}$ or $\frac{1}{12}$ of a drop, in pill form twice a day, for from three to six months.

MR. CAMPBELL DE MORGAN.

This London surgeon first used *chloride of zinc* in cases of cancer, with the idea that the frequency of the return of the disease after operating was due to the remains of its germs on its cut surface; and he hoped that the application of chloride of zinc to the wound would destroy any cancer-germs that might be scattered over it, and thus diminish the chance of recurrence. His prescription was:

1141.	R.	Zinci chloridi,	gr. xl	
		Aquæ,	f. ʒj.	M.

With this he freely washed the surface of the wound after operating.

M. MAISSONNEUVE, OF PARIS.

This distinguished surgeon attacked cancerous tumors with *caustic arrows*. This composition was as follows:

1142.	R.	Zinci chloridi,	1 part	
		Farinæ (wheaten flour),	3 parts	
		Aquæ,	q. s.	M.
Make into a paste.				

The arrows are formed by rolling this paste into cakes, which are then to be divided into strips of any desirable shape or size; then by drying they may be made to assume any desired degree of firmness or tenacity. MAISSONNEUVE uses the arrows in three forms: 1. Conical, for circular cauterization; 2. Lance-shaped, for cauterization in parallel lines; 3. Spindle-shaped, for central cauterization.

When used, they are introduced into the body of the tissue, so as to effect the destruction from *within outward*. If the tissues are soft,

the arrows will penetrate them; if not, a passage must be made with a scalpel. This can usually be done without loss of blood if the arrow fills the wound completely.

"1. *Circular Cauterization* is specially applicable to tumors which project above the surface, as in tumors of the breast and the like. The arrows are introduced around the tumor at the distance of one-third to one-half an inch from one another, and the tumor is effectually destroyed in one hour, or two at most. By this method very little of the healthy tissue is destroyed, scarcely any blood is lost, and there is very little reaction.

"2. *Cauterization in Parallel Lines*.—In this method the caustic is introduced in parallel lines, so as to divide the substance to be destroyed into thin laminæ, which yield promptly to the destructive properties of the agent. This method has been found most useful in tumors that are deep-seated—as in the neck, the rectum, the uterus, etc.

"3. *Central Cauterization*.—In this method an opening is made with a scalpel carried through the middle of the tumor, and the arrows are pressed into this until they are completely buried in the tissues. This method is less energetic than either of the others, but is useful in superficial tumors. The chief advantages claimed for cauterization by MAISSONNEUVE are its powers of preventing purulent infection, erysipelas, surgical fever, hemorrhage, (it is a powerful hæmostatic,) and other dangerous contingencies of surgical operations."

DR. J. W. BRIGHT, OF KENTUCKY.*

This author, who claims to have had a long and successful experience in the treatment of cancers, depends almost exclusively on certain preparations of the *chloride of zinc*. These are four in number, as follows:

1143. R.	Extracti podophylli radicis,	3j	
	Zinci chloridi,	3iij	
	Amelii,		
	Santali pulveris,	āā	3j
	Aquæ,	q. s.	M.
Make a thick paste.			

The object of the starch is to give tenacity to the paste, and of the red sanders porosity, so that the full effect of the active constituents may be felt by the sore.

* *Cancer, its Classification and Remedies*. Phila.

1144. R. Zinci chloridi, ℥ ss
 Aquæ, q. s. ad saturandum.
 Keep in a glass-stoppered bottle, and apply with a glass brush.

The third preparation is like the first, with the substitution of carbolic acid for water. The fourth is an arrow of chloride of zinc. Take enough starch to absorb the moisture of the chloride, make a stiff paste, roll into sheets, cut the arrows to a point, and dry at a heat of 212° . Keep in a glass-stoppered bottle.

In using the paste it is spread on a piece of cotton or linen cloth, large enough fully to cover the sore and its margin. It may then be confined with adhesive strips, and renewed once in twenty-four hours. After three or four applications in this manner, the surface of the sore is white and hard. A light poultice should then be applied, and in about a week the slough loosens, and should be followed by healthy granulations. If small lumps remain, or subsequently appear on the edges of the scar, they will usually disappear by the application of the following ointment:

1145. R. Iodi, ℥j
 Brominii, ℥ iss
 Adipis, ℥j. M.

When, after removal by the paste, there seem to remain points of cancerous tissue at the bottom of the sore, they should be brushed with the saturated solution of zinc.

In employing the arrows, they are inserted around the tumor to the proper depth, punctures being previously made with a bistoury.

In connection with this local treatment, tonic, aperient and alterative remedies must be prescribed as needed, and the hygienic and mental condition of the patient put upon the best possible basis.

DR. FELL'S PASTE.

1146. R. Zinci chloridi, āā
 Pulv. sanguinariæ radicis, ℥j
 Amyli, q. s. for a paste.
 Apply on pieces of kid or wash-leather.

This preparation, which has been revived of late years, is but a modification of "Dr. Fell's cancer salve," famous half a century ago. It is a useful application in cancerous sores.

Another form of the same is:

1147. R. Zinci chloridi, āā
 Pulv. sanguinar. rad., ℥j.

Rub together in the open air to a stiff paste. Apply on cotton-wool to the entire surface of the cancer. After about two hours it should be removed. The process may be repeated daily "until the wound presents that freedom from cancerous particles which one soon learns to recognize in using this paste." (Dr. J. E. NICHOLS, *Chicago Medical Journal*, March, 1875).

M. MICHEL, OF PARIS.

The famous *sulphuric acid paste*, devised by this operator for removing external tumors, is made and applied in the following way: Asbestos, as soft and free from grit as possible, is reduced by rubbing between the hands to the finest possible fleecy powder. It is then mixed thoroughly with three times its own weight of strong sulphuric acid ($\text{SO}_3\text{H}_2\text{O}$). A mass is thus formed which may be easily worked with a silver or gold spatula into any size or shape corresponding to the tumor to be destroyed. In the application of the caustic, the adjoining healthy parts of the skin are carefully protected by applying a zone of collodion and pads of linen, and the patient is so placed that the surface of the tumor is perfectly level. The saturated acid abestos is then laid on the surface to the necessary thickness. Rapid destruction of the tissues follows, with, after the first half hour or so, but little pain. An oozing of clear watery fluid appears, which must be carefully sopped up. After twelve or fourteen hours' action, the first application is to be removed, and, if necessary, a new portion of smaller size adapted to the sore. After this has been applied for twelve hours the operation is complete, and the healing of the deep excavation alone requires to be attended to.

LONDON HOSPITALS.

1148. R.	Zinci chloridi,	℥ iij	
	Antimonii chloridi,	℥ ij	
	Amyli,	℥ iv	
	Glycerini,	q. s.	M.

Powdered opium may be added, to lessen the pain caused by this caustic, which is employed with success to destroy cancerous tumors.

1149. R.	Extracti belladonnæ,	℥ ss	
	Acidi hydrocyanici diluti,	f. ℥ j-ij	
	Glycerini,	f. ℥ j	
	Aquæ destillatæ,	℥ j.	M.

One fluid ounce of this solution is mixed with from one to three fluid ounces of distilled water, and compresses dipped in this mixture are applied to the cancerous tumors as a soothing lotion.

1150. R. Opii pulveris, 3j
 Extracti conii, 3ij
 Acaciæ pulveris, q. s. M.

Divide into forty pills. One or two to be given in the evening, to combat the pains of cancer which cannot be operated on.

1151. R. Conii foliæ,
 Adipis, āā 3 iss. M.

The conium leaves, which should be fresh, are boiled over a slow fire, in the lard until they become friable, and then filter. This pomade is to be employed in frictions on cancerous tumors, at the same time that stramonium is given internally. If fresh conium leaves cannot be obtained, the pomade may be made with the extract of conium and lard.

JAMES E. GARRETSON, M. D., D. D. S.

This author remarks that in the treatment of *scirrhus of the tongue*, the use of caustic remedies is widely employed, and in instances recommended by very high authority. His own experience would suggest the following caustic:

1152. R. Zinci choridi,
 Aluminis pulveris, āā gr. v
 Acidi tannici, gr. ij
 Ferri persulphatis, gr. iij
 Glycerini, q. s. for a paste.

To apply this paste, draw the tongue forward, hold, and dry it well with a napkin. Lay some crystals of zinc on the part, and cover over with the paste. This may be allowed to remain as long as the tongue can be kept dry. Finally, wash the *débris* away, and the application is completed.

If severe glossitis supervene after such an application, it will imply that much more harm than good has been done. In making a caustic impression under such circumstances, the parts should be quickly killed, not excited or provoked.

The galvanic cautery is thought by many to be greatly preferable to the potential cauterants.

Injection of *persulphate of iron* is still another means much employed and commended. Dr. GARRETSON, however, has not found it to answer his expectations.

Cancerous *epithelioma of the tongue* must either be extirpated in the most radical manner, or be soothed into quiet. Section of the lingual nerve and ligation of the lingual artery have been performed with the latter view.

Where operative means have not been thought advisable, patients have expressed themselves as receiving the greatest relief from the local employment, by means of an atomizer, the following combination:

1153. R. Acidi carbolici fluidi, ℥ ʒi
 Sodii sulphitis, ʒj.
 Aquæ, ℥ ʒss. M.
 For an atomization.

In *epithelioma of the lip*, also, this preparation will be found to afford much relief from pain, and to be softening and soothing; it has even seemed to possess a marked influence in retarding the progress of the disease. It may also be administered internally in teaspoonful doses.

The severe pain requires liberal administration of anodynes. Hypodermic injections of morphine may be used. For continuous stomachic administration, preference is given to the *bi-mecconate of morphine*; the officinal strength of this medicine is that of laudanum, twenty-five drops representing one grain of opium.

DR. O. CROOK, OF OHIO.

In the *Medical and Surgical Reporter*, August, 1869, this writer urges upon the profession the internal use of *poke root* in cancer. He prepares it as follows:

1154. R. Phytolacæ radicis, ʒij
 Alcoholis, Oj.
 Macerate fourteen days and filter. Dose, fifteen drops to a tablespoonful after eating, the dose to be increased as fast as can be done not to excite decided nausea.

The effects of the medicine should be apparent in two or three weeks, lessening the pain of the cancer and arresting the growth of tumor.

Locally, he applies the poke root grated, in the form of a poultice. But when the cancerous growth had already progressed until spontaneous suppuration had taken place, he believed the action of the root was no longer curative.

NOTES ON REMEDIES.

Aceticum Acidum has been used as a parenchymatous injection in malignant growths, and also as a local external dressing, with occasional good results. The *acetates* of lime and soda have been prescribed by Dr. E. CURRIE, of Paris, with asserted good effect. (Dose, ʒss daily.)

Alcohol. In the hypodermic use of this substance in cancer, Dr. HASSE (*Medicin. Centralzeitung*, February, 1874,) recommends that it be thrown, not into the new growth, but around its edges, thus obliterating the lymphatics which convey the infection, and producing atrophy of the growth itself. He repeats the injections every eight to fourteen

days, allaying pain with ice-bags. His mixture is one hundred parts of alcohol to one of ether.

Alveloz, a substance derived from *euphorbia icterodoxa*, has been used as a topical application in cancer. It soothes the pain, diminishes hemorrhages, and seems to be followed by improvement in general health.

Ammonii Carbonas and *Chloridum* were often given internally by Sir ASTLEY COOPER.

Arsenicum, both internally, as Fowler's solution, and externally, as a caustic, has been largely employed. (See above, pages 743, *et seq.*)

Brominium, in uterine cancer, has been extensively employed by Dr. WYNN WILLIAMS. (Page 742.) The *chloride of bromine* is deemed of the highest value by Dr. LANDOLFI. (Page 746.)

Carbolicum Acidum is used pure, as an anæsthetic, before applying caustics.

Carbonicum Acidum, injected up the vagina, in uterine cancer, is a valuable means of relieving pain. (See Chapter I.)

Chloral? Dr. FLEISCHER uses chloral locally in carcinoma uteri. He first washes out the vagina thoroughly, and then passes up to the cancerous surface some cotton-wool wetted with a solution of chloral (ʒij to aquæ f.ʒiij) ; this application is repeated every two hours. After a few applications, the pain is moderated, and the discharge becomes less offensive. (*Med. Chir. Centralblatt*, IX., 1875.)

Chloroform may be atomized as vapor on raw, painful surfaces.

Chromicum Acidum.

1155. R.	Acidi chromici,	gr. c	
	Aquæ destillatæ,	f. ʒj.	M.

For hypodermic injection. Sixty drops of this may be thrown into neoplastic growths, at several points. The operation may be repeated every other day until there is produced redness and tumefaction. It should then be suspended for a week or two, and again resumed. The operation should bring about gradual absorption or atrophy of the mass.

Citricum Acidum, ʒj-ij to aquæ f.ʒviiij, will frequently relieve the severe pain of cancer.

Condurango. The value of this substance in gastric cancer has recently been very carefully studied by Professor RÜHLE, of Bonn. He used Friedreich's macerated decoction :

1156. R.	Corticis condurango,	ʒ ss
	Aquæ,	f. ʒ xij.

Macerate for twelve hours and evaporate to one-half the amount. Dose, a tablespoonful three or four times a day. It should be a dark brown, somewhat turbid fluid, slightly bitter and aromatic.

Professor RUHLE has seen no evidence that it produces actual retrograde metamorphosis of the cancer. He has, however, been repeatedly told by patients who have used condurango for cancer of the stomach, that the chief symptoms—vomiting, loss of appetite, and the pain itself—have abated; that in one case a decided improvement of general health took place; and in others, out-patients who had been on its use for some time, in consequence of this decided improvement, ceased attending, apparently believing themselves recovered.

Creosotum. In epithelioma, Dr. FORNE reports, in the *Montpellier Medical*, February, 1872, good results from the topical application of creosote. The whole surface of the ulcer is lightly but firmly touched with a brush dipped in the pure article, after which a piece of lint wet with a gummy solution of creosote is applied. The treatment should be repeated every third day. Fifteen or twenty applications may be required, but he reports commencing cicatrization after the first half dozen.

Dr. JOHN FRISSELL, of West Virginia, has, for a number of years, used with great satisfaction the following antiseptic and detergent dressing to cancerous surfaces. It is diluted more or less with water, and applied by strips of old muslin:

1157. R.	Tincturæ gallæ,	f. ʒ ij	
	Tincturæ myrrhæ,	f. ʒ j	
	Tincturæ opii,	f. ʒ v	
	Creosoti,	f. ʒ j	
	Acidi acetici,	f. ʒ ij	M.
For a lotion.			

Cupri Nitras, in strong solution, is an efficient caustic.

Cupri Sulphas is employed as an escharotic.

Dioscorea Villosa. In cancer of the stomach, Dr. C. T. HART, of Wisconsin, says the wild yam is superior to any other agent he has tried in soothing the pain, distress and vomiting. (*St. Louis Medical Journal*, 1869.)

Ferrum. Various preparations of iron have been used in cancer. Dr. CAR-MICHAEL, of Dublin, claimed to have derived much benefit in epithelioma from washing the ulcerations with a solution of the sulphate. Professor H. H. SMITH, of Philadelphia, reported a case too far gone for operation, for which he prescribed Vallet's mass, gr. v-x, daily, and the powdered carbonate to be applied to the sore; and the patient lived eight years, the disease meanwhile making almost no progress. Dr. JUSTAMOND, of London, used to give gr. lx-c of the ammonio-chloride daily.

Gastric Juice. Professor SCHIFF, of Geneva, and others, have advocated the treatment of malignant ulceration by gastric and pancreatic juice.

Dr. C. H. F. ROUTH, of London, who has tried the remedy, has reported favorably upon it.

Hydrastis Canadensis. Dr. EDWIN PAYNE, of London, has highly commended the yellow root, used in lotion, especially in epithelioma of the lips. It renders the parts much less painful, keeps the surface in a more healthy condition, and neutralizes the fetor. His formula is :

1158. R.	Tincturæ hydrastis,	f. 3j	
	Aquæ,	f. ʒ viij.	M.

For a lotion.

Iodum, in various preparations, is widely employed.

Iodoform, applied locally, relieves the pain.

Pepsina. (See Gastric Juice.)

Phytolacca Decandra has a wide-spread reputation in cancer. (Page 741.)

Plumbi Nitratis. Nitrate of lead is a valuable application in epithelioma, warts, excrescences, etc.

1159. R.	Plumbi nitratis,	3ij	
	Aquæ rosæ,	f. ʒ iv.	M.

Apply three times a day.

Potassa Fusa. In rodent, epithelial or other cancerous formations that are superficial and of limited extent, the potassa fusa has advantages over any other caustic resorted to. Its effect is prompt, its action readily guided and controlled, and the destruction of the parts to which it is applied is complete. Its beneficial effects are not limited to the line of complete destruction. The cancerous proliferations which extend beyond the margins of a perceptibly diseased condition, possessing a lower vital power than healthy tissue, are necessarily disturbed by the chemical action, while the pain produced by its use is often less than results from the use of the knife.

Potassæ Liquor, recommended by Sir BENJAMIN BRODIE. (Page 741.)

Potassii Bromidum has been used as a caustic in cancerous affections. M. PEYRAUD, of France, employs the powder, and with it states that he cures cancrs, provided they be not too extensive. The application at times, according to the seat of the disease, may be very painful, especially if the cancr be somewhat extensive. The eschar formed by the powder has the thickness of a two-franc piece. It is not produced immediately, it is only after twenty-four hours that it appears. It is semi-transparent, if the wound does not bleed. It also seems that the wound upon which it rests is diminished in extent; one would say that it shriveled. This eschar is rapidly eliminated. (*Progrès Medical*, No. 36, 1876.)

Potassii Chloras, in saturated solution, is an excellent application to epithe-

lioma. Indeed, it has been claimed to have cured some cases. It was first brought to notice by LEDESCHI, in 1845.

Silica. In the *Edinburgh Medical Journal*, Nov., 1875, Mr. F. BATTIE states that silica, powdered very fine, greatly relieves the pain in cancer. His prescription was :

1160. R. Pulv. silicæ,	gr. iij	
Morph. sulph.,	gr. j.	M.
For three powders. One three times a day.		

Possibly the anodyne action of the morphine was simply enhanced by fine trituration ; at any rate, the effect was much better than the morphine alone.

Sodii Bicarbonas. Prof. BUSCH, of Bonn, has derived great benefit in epithelioma from frequent washings with soda. (*London Medical Record*, May, 1877.) His conclusions are : 1. Epithelial cancer commences in many cases as a simple proliferation of the superficial epithelium. 2. In this stage the disease is curable by persistent washing with solution of soda. 3. In certain favorable cases of superficial cancer of the face this method is successful, even when ulcers are present. 4. In many cases the recurrence of epithelial cancer after extirpation is prevented by alkaline washings of the cicatrix and adjacent parts. 5. It may be useful as a prophylactic measure, to remove the epithelial deposits which sometimes take place on the breasts of elderly women.

Sulphuricum Acidum, used by M. MICHEL. (Page 750.)

Tannicum Acidum. According to Dr. SCHWALBE, this acid possesses the property of destroying the cancer-cells and favoring absorption of the products. The author has attempted the use of this substance in injections into various tumors, and he has seen a malignant lymphoma of the neck diminish considerably under its influence. A tumor as large as a hen's egg, implanted upon the periosteum of the lower jaw, and the development of which had been very rapid, necrosed quickly under the influence of these injections, and soon fell off.

Terebinthina. Chian turpentine in pills with sulphur, gr. iij of the former to gr. ij of the latter, claimed in 1880 as a curative agent in uterine cancer, by Dr. JOHN CLAY, of Birmingham. Other observers have not sustained the claim.

Thuja Occidentalis has been used both internally and locally to cancerous affections, with asserted advantage.

Zinci Chloridum is the most widely used of all the escharotics in cancerous affections. (Above.) It is highly recommended by European surgeons. Its power to arrest phagedenic action is remarkable. It not only has a cauterant property, but it is peculiarly alterative. It may be mixed with flour or other substances to form a paste. One part to

three of flour is preferred by some. In epithelioma, Dr. GARRETSON prefers it in its purest form. He believes that anything less than killing the part outright will always be found productive of far more harm than good; therefore he covers the part to be acted on with the undeliquesced crystals of the chloride, corroding away, by the immediate repetition of this agent, the parts, until the diseased scales are all destroyed. The chloride has also been given internally, gr. $\frac{1}{2}$ in a wine-glassful of caraway water every morning.

Zinci Sulphas has also been used as an escharotic.

Mineral Waters. The Eaux de Celles (Ardèche), in France, have been recommended by various eminent French surgeons as beneficial in cancer. In the United States, the Missisquoi water, in Franklin county, Vermont, is said, on high authority, to have proved a valuable palliative in this disease. Both these waters contain considerable quantities of alkaline carbonates and other ingredients, and resemble each other in a general way, but present nothing which we could single out as probably active against cancerous disease. Sir JAMES PAGET attributes their value to the influence they exert on the arthritic diathesis often present in cancer. He says of the Missisquoi water, that its influence on cancer itself, is, he believes, absolutely nothing, "but it sometimes gives comfort 'by the way.'" (*Clinical Lectures*, page 338.)

It is probable that some of the mineral springs containing arsenic would be available in cancer. Such a one is that of the stream called Whitbeck, rising in the Black Combe Mountains, in West Cumberland, England, which percolates through arseniferous cobalt ores, and contains arsenic in determinable quantity.

Electrolysis. Various surgeons in Europe and America have reported cures of scirrhus or other malignant tumors by electrolysis. A powerful apparatus must be used, such as that of KRUGER & KIRSCHMANN (that of ALTHAUS is too weak).

Drs. BEARD and ROCKWELL state that pain may be relieved, and sometimes a reduction in size may be obtained, by the ordinary method of electrolysis, or by simple external faradization or galvanization; and by these methods, also, the tumor may be arrested in its progress for a long time. The prognosis in epithelioma is good, but of scirrhus doubtful. In cancerous tumors of the breast, those which involve but a limited portion of it, where the skin is soft and yielding, and of natural color, not unfrequently yield to electrical treatment. Not only is the pain relieved, but the tumors grow softer and smaller. Sometimes their growth is arrested, and they remain stationary for years. Even in the worst forms of cancer the surgeon is frequently able to relieve the terrible pain that accompanies it by galvanization. "It is not sufficiently understood what a magic influence an intelli-

gently-directed application of the constant current exercises, as a rule, over the throbbing pain of scirrhus."

The electrolytic treatment of malignant tumors has also been carefully studied by Dr. WILLIAM B. NEFFEL, of New York. He sums up his researches with the positive declaration that the most malignant tumors, such as true cancer, "at a certain stage of their development, can be radically cured by electrolysis, employed according to certain methods." The method he employs is by inserting needles around the mass, and increasing gradually and slowly the current intensity. The treatment is comparatively painless, and may be applied to cases which are quite far advanced. Little reaction follows it, and with judicious after-treatment a fair percentage of success may be expected. Dr. NEFFEL'S cases have been published in *Virchow's Archives*, and elsewhere, and deserve careful consideration.

Pressure. (See page 742.) A recent writer in the *Lancet*, 1878, remarks that it is obvious if pressure is to be effective it must be applied around the periphery of the growth, where the cell proliferation is most active. This must be obtained, it is said, by the careful adjustment of pads of cotton-wool. The neatest plan would seem to be the employment of compressed sponges, which might be bandaged firmly around a tumor of the breast, and then allowed to swell by imbibition of water. The constriction of the chest would of course be great, and thoracic respiration seriously interfered with. But the patient might be kept in bed, where abdominal respiration might suffice.

III. SCROFULA.

Since the publication of the last edition of this work, considerable advances have been made in our knowledge of this condition; and while its therapeutic consideration is well worthy an independent position, it should be remembered that in its essential characteristics scrofula is nothing more or less than tuberculosis. It is a name applied to those persons affected by a non-active tuberculosis who are constantly menaced by this disease, and was formerly regarded as a predisposing state in which the tubercular virus was particularly liable to gain entrance to the body and develop into its malignancy. Scrofulous individuals are however already the possessors of tuberculosis, and may only be said to be predisposed in the sense that if their resistive powers are in any way lowered the tuber-

cular micro-organisms present within them may spring into activity. They are characterized by low grade inflammatory conditions about the glands, bones and joints; and generally have well-marked types of formation.

The cure of scrofula may well be studied apart from that of other tuberculosis, inasmuch as in this condition the tubercular germs are at their lowest proportionate strength in relation to the bodily strength of the patient, and should here if in any state be unable to withstand opposing medicinal measures. At present the medical world may be said to be awaiting with some confidence, shaken in a measure it is true by past failures, the announcement of an agent able to positively select and destroy within the body the virus of tuberculosis. The experiences with *tuberculin* and the many suggestions its study opened up in the line of bacteriological investigation make the discovery of such an agent entirely probable; and when it is known, the vast armies of tubercular cases may well grant honor to Professor ROBERT KOCH and the men who are assisting in the work of development of this special field of knowledge all the world over. For a description of the present status of the tuberculin cure, the reader is referred to Vol. I., p. 118; its reproduction here is obviously unnecessary. Until this development is however complete, and the specific sought for is found, the treatment of tuberculosis, as well as of its *alter ego*, scrofula, must depend upon measures intended for the preservation and improvement of the general condition of the patient, and the prevention of any marked activity of the bacilli in any locality, lest they become generalized. The bulk of the instructions published in this chapter in the last edition have been retained, but the reader must be cautioned to read in the light of this introduction. Some of the authors have regarded scrofula as of syphilitic nature; this is a mistake. It is essentially a tubercular condition. The fact that mercury and iodine are of such undoubted benefit in scrofula must not be interpreted as indicating a syphilitic relationship; these same remedies are well known to be of decided value in undoubted tuberculosis.

PROF. S. D. GROSS, OF PHILADELPHIA.

While the lancet must be employed with great care, Dr. GROSS is satisfied that it is often of immense benefit in arresting the morbid action. In scrofulous inflammation of the eye, throat and lymphatic glands, its effects are often marked and permanent. But these active

measures must ere long in the case be superseded by other remedies, similar to those generally applicable in the more common form of the disease.

Among these, *iodine* may be regarded as the most important. When a purely alterative effect is desired, it is best given in the form of

LUGOL'S CONCENTRATED SOLUTION.

1161. R. Iodi, ℥i
 Potassii iodidi, ℥ij
 Aquæ destillatæ, ℥ 3 viij. M.

From five to ten drops every eight hours, in a wineglassful of sweetened water, gradually increased to fifteen, twenty, twenty-five or thirty drops, according to the tolerance of the system.

When scrofula is associated with constitutional syphilis, rheumatism or mercurial disease, *iodide of potassium* is best given alone, in some aromatic syrup, or, if there is much nervous irritation, in hop tea.

The *iodide of iron* is one of the most valuable scrofulous remedies we possess. It is particularly beneficial in disease of the cervical glands, upper lip, eyes and joints. It may be given in pill, in union with quinine and opium. If undue vascular action is present, gr. ʒi of tartrate of antimony and potassium may be added to each dose.

In whatever form iodine is used, during its exhibition the system should be free from vascular excitement; and after it has been given for a fortnight, it should be omitted for several days, when it may be resumed and given as before. The initial doses should be small and gradually increased. If it acts as an irritant, the doses must be reduced, or else combined with opium and hyoscyamus. If these rules are observed, it exerts a much happier influence on the disease, while their neglect often results in great mischief.

Barium is a remedy of great value in scrofula, often succeeding where iodine fails. It is particularly serviceable in chronic enlargement of the cervical glands, both before and after the establishment of suppuration. It is chiefly adapted to patients with a languid circulation, a pale, tallow-like complexion, a flabby tongue, indigestion, and cold extremities. Its use is contra-indicated where there is inflammatory excitement, or congestion of any important organ.

1162. R. Liquoris barii chloridi, q. s.

Six to eight drops at a dose, cautiously increased to ten or fifteen drops, three times daily, in a wineglassful of hop tea or a half ounce of syrup of orange peel.

Exhibited in large quantities, it produces symptoms of mineral poisoning.

Of the preparations of *mercurey*, the bichloride is the best, gr. $\frac{1}{10}$ – $\frac{1}{15}$ thrice daily, in pill or solution. Thus administered, it yields hardly in efficacy to iodine, and is probably superior to barium. The system should be properly prepared for its reception, and if it act as an irritant to the intestinal canal, its use must be suspended, or it must be guarded with opium. Needless to add that salivation should never be induced.

Cod-liver Oil, though not infrequently prescribed indiscriminately and where it does no good, is especially valuable where there is a decided tendency to emaciation. The dose is f. $\bar{3}$ ss, thrice daily, in good ale or along with a little brandy. Its use must be continued steadily and persistently for a long time.

Whatever remedies are employed, the closest attention should always be paid to maintaining the bowels regular and active; to providing the patient with light and nutritious diet; moderate and regular exercise in the open air; and warm and comfortable clothing.

MR. WILLIAM SCOVELL, OF LONDON.*

Before a course of any medicine is commenced, the condition of the digestive apparatus should be carefully examined, and any disorder present rectified if practicable. Strict attention to diet, and the regular use of a mild aperient, is most commonly sufficient to effect this. A few grains of rhubarb and soda, for some nights in succession, occasionally combined with a little gray powder, and then followed by a dose of castor oil the next morning, in order to clear out the canal, usually succeed well.

This premised, it is now proper to begin the systematic exhibition of tonics. Of these, there is a great variety, appropriate to different conditions.

Iodine.—The preparations of iodine are most likely to prove serviceable in the absence of all fever and vascular excitement. If these are present, they often only increase the mischief. They may usually be prescribed with advantage in simple, but concentrated decoction of sarsaparilla.

Iron.—The use of iron is especially indicated when the symptoms of anæmia predominate; when the blood seems poor in red cells; especially when this is combined with a feeble circulation and general want of tone. The *potassio-tartrate* is especially useful in children, and has the additional advantage of combining with alkalis.

* Contributed to Holmes' *System of Surgery*, Vol. I., London.

The *vinum ferri* is a mild and simple preparation, and often a most valuable one. But the *sulphate*, when it can be borne, is sometimes much more efficacious; and the *tincture of the perchloride* is perhaps the most powerful of all. All cases of debility are, however, not suited by iron. When the lips and conjunctivæ are florid, it is least likely to agree.

Iron and iodine may often profitably be prescribed in combination. The syrup of the iodide of iron is a convenient officinal form.

Quinine, or other form of bark, is especially called for when the flesh is flabby, when there is great debility, when the appetite is bad and the excretions tolerably healthy. It may often be advantageously combined with iron.

The *mineral acids* are generally given in similar conditions. They are especially useful in checking the profuse perspiration of hectic fever.

The *alkalies* and their carbonates are valuable in scrofulous dyspepsia. They are more particularly indicated when the urine is highly acid and contains an excess of the lithates, or still more any free lithic acid. For children, lime-water, either in milk or in sarsaparilla, is often serviceable.

Emetics.—When there is much local disturbance about a tuberculous deposit; when the inflammation appears to be independent of any change in the mass itself, and more especially if this be combined with any gastric disturbance, the operation of an emetic will often be followed by signal improvement.

Aperients are generally required from time to time during the course of tonics, and always when the state of the tongue and the excretions indicate a loaded condition of the intestinal canal, or the presence of morbid matter.

Cod-liver Oil.—No other remedy in scrofula enjoys so high a reputation as this. That the best effects may be obtained from its use, it must be taken for a long time, for months, or even years. A teaspoonful to begin with, twice or thrice daily, gradually increased, for adults, to a tablespoonful, may be considered a proper dose. When the stomach is weak, and there is a tendency to nausea, a solution containing $\frac{1}{10}$ to $\frac{1}{30}$ of a grain of strychnine acidulated with nitric acid, often proves a most useful vehicle. The oil can be taken in larger quantities and for a longer period in cold than in warm weather. In cold weather the oil should be slightly warmed before it is taken.

Hygiene.—All medicines should be only accessory to hygienics.

The food should be nutritious and abundant. Stimulants in moderation are allowable. A scrofulous mother should not suckle her children. The child should not be weaned until after "teething." Flannel should always be worn next the skin.

PROF. J. LEWIS SMITH, M. D., NEW YORK.

As scrofula is an essentially hereditary disease, its treatment must commence in infancy. The most enlightened rules of diet and hygiene must be observed. Of the strictly medicinal agents, cod-liver oil is the most useful. It possesses real value in the erethitic form of the diathesis, but none in the torpid form. Iodine, internally, is especially serviceable in glandular hyperplasia. The iodides of iron and starch are the best forms. The latter may be given by dropping one to five drops of the officinal tincture of iodine on a little powered starch, and giving it in syrup.

For the *swollen glands* the officinal preparations of iodine are too stimulating. The following is better:

1163.	R.	Potassii iodidi,	3j	
		Extracti stramonii,	3j.	M.
To be rubbed over the gland several times daily.				

Or:

1164.	R.	Liquoris iodi compositi,		
		Glycerini,	āā	f. 3 ss. M.
To be applied three times daily, with thorough friction, till the skin is irritated.				

When the glands become actively inflamed, iodine applications should no longer be employed. Poultices should be applied, and resolution hastened.

PROF. H. H. TOLAND, M. D., OF SAN FRANCISCO.*

This author recommends warm clothing, a light and nutritious diet, moderate exercise, warm salt-water baths, and, where practicable, a change of air.

When the digestive organs of scrofulous children are deranged, especially if diarrhœa exists, and the tongue is furrowed, with red edges, half a grain of *calomel* should be given at night until the secretion of the intestinal tract becomes healthy. After that the following preparation will prove extremely beneficial:

* *Lectures on Practical Surgery.* Philadelphia, 1877.

- | | | | |
|----------|-------------------------|------------|----|
| 1165. R. | Bismuthi subcarbonatis, | 3ij | |
| | Tincturæ nucis vomicæ, | f. 3 iss | |
| | Syrupi zingiberis, | f. 3 i | |
| | Syrupi simplicis, | f. 3 iiij. | M. |

A teaspoonful four times a day for a child four years old.

When scrofulous children have swollen lymphatic glands about the neck, constipated bowels and strumous ophthalmia, the following combination will be found superior to perhaps any other that can be devised :

- | | | | |
|----------|---------------------------|----------|----------|
| 1166. R. | Extracti sennæ fluidi, | f. 3 iv | |
| | Tincturæ nucis vomicæ, | f. 3 iss | |
| | Tincturæ aconiti radicis, | | |
| | Acidi hydrocyanici, | āā | gtt. xv. |
| | Syrupi zingiberis, | | f. 3 iss |
| | Syrupi simplicis, | | f. 3 ij. |
| | | | M. |

A teaspoonful four times a day for a child four years old.

Should the bowels remain constipated, the quantity of the senna may be increased. It acts on the liver, and exerts a decidedly beneficial effect on the general disease. When this has been continued for some time, it is often well to change it for the following, which will be found an excellent substitute :

- | | | | |
|----------|------------------------|----|----------|
| 1167. R. | Quininae sulphatis, | 3j | |
| | Syrupi rhei aromatici, | | |
| | Syrupi zingiberis, | āā | f. 3 j |
| | Syrupi simplicis, | | f. 3 ij. |
| | | | M. |

One teaspoonful three times daily.

When the child is pale and emaciated, without the existence of intestinal irritation, 3ij of the precipitated carbonate of iron may be added to either of the above mixtures, with, in many cases, the happiest result.

When the lymphatic ganglions, submaxillary glands or testicles become enlarged, the *iodide of potassium* is preferable to any other remedy. By far the best form when the patient is near the age of puberty is Blanchard's pills, *pilule ferri iodidi*, U. S. Ph. The worst case of ganglionic enlargement will yield in three months to the use of these pills. Dr. TOLAND has not found cod-liver oil of much value in this disease.

Locally, to scrofulous enlargements and indurations, an excellent application is :

- | | | | |
|----------|------------------|----|----------|
| 1168. R. | Tincturæ arnicæ, | | |
| | Tincturæ iodi, | āā | f. 3 ss. |
| | | | M. |

Paint the parts morning and evening.

When the skin is delicate, as in children, we may use :

1169. R.	Potassii iodidi,	3j	
	Alcoholis,	f. ʒj	
	Aquæ,	f. ʒxj.	M.

Apply on saturated lint to the part, and cover with oiled silk.

Operations for scrofulous affections should be confined to the bones, and should not be performed until the periosteum is detached and the whole of the disease removed; then the bone is speedily reproduced, and the result in many cases extraordinarily successful.

SCROFULOUS ULCERS.

In regard to the plan of cure, Professor GROSS remarks they should be treated rudely at first and gently afterwards. The undermined edges are cut away with the knife or scissors, and the surface is thoroughly touched with the dilute *acid nitrate of mercury*, the solid *nitrate of silver* or *sulphate of copper*, the application being repeated every other day until there is an appearance of healthy granulations, when milder means, such as opium cerate or the dilute ointment of nitrate of mercury, takes its place. If disintegrated glands are present, they are removed with the knife or destroyed with Vienna paste; for so long as they remain no substantial progress can be made toward a cure. Sinuses are traced out with a bistoury, unless they involve important structures, when stimulating injections or the seton must be used. The application of dilute tincture of iodine on the surface around the ulcer will often expedite the cure.

NOTES ON REMEDIES.

Alcohol, in the form of wine, beer, or distilled spirits, has often an excellent effect. Professor GROSS says that many emaciated, scrofulous patients rapidly become fat under the use of small quantities of whisky taken frequently through the day. Dr. ALEXANDER STEEL, of New York, recommends gentle, moderate stimulation, by means of malt beverages, as corrective of the scrofulous condition of the blood. (*Medical Gazette*, Jan., 1871.)

Alkalies. In scrofulosis, when oxaluria is present, sodium or potassium alkalies should be administered, and saccharine food avoided.

Ammonii Iodidum is useful in scrofula attended with glandular enlargement.

The dose is gr. iij.

Aqua Picis is pronounced by Dr. COPELAND to be one of the most efficacious

means we possess against scrofulous affections, when aided by a suitable diet and regimen. He administers it freely, and uses it externally as a lotion and dressing to ulcerated glands, etc.

Arsenicum deservedly occupies a high place among the internal remedies in scrofula. DONOVAN'S solution is an appropriate form.

Auri Pulvis. Powdered gold has been highly praised as an alternative in scrofulous affections and strumous glandular enlargements. The dose is gr. $\frac{1}{4}$ – $\frac{1}{2}$, gradually increased to gr. iij, thrice daily, in pill form.

Barii Chloridum is especially valuable when languid circulation and irritability of the mucous surfaces are present. It is said to be particularly adapted for females with menstrual irregularity. The following formula may be employed :

1170. R.	Barii chloridi,	gr. x	
	Tincturæ ferri chloridi,	f. 3 ij–iv	
	Syrupî aurantii,	f. 3 x.	M.

One or two tablespoonfuls two or three times a day.

Bromine is a useful remedy. The following solution is a good one for internal administration :

1171. R.	Brominii,	m ^x	
	Aquæ,	f. 3 vij.	M.

To commence with, gtt. vj, three or four times daily.

Calcii Chloridum. In scrofula with glandular enlargements of the neck, Dr. WARBURTON BEGIE has extolled chloride of calcium, gr. x–xx for one dose, given in milk after food, and continued for some time, its good effects in many cases not at once becoming apparent. Dr. COPELAND also recommends it strongly.

Calcii Iodidum, gr. $\frac{1}{8}$, thrice daily, used as the last-mentioned substance.

Calcii Sulphidum. Dr. RINGER has found the sulphides extremely valuable in scrofulous glands and in chronic strumous sores and abscesses. A favorite formula with him for children is :

1172. R.	Calcii sulphidi,	gr. j	
	Aquæ,	Oss.	M.

Dose, a tablespoonful every hour.

It is essential that the medicine be compounded daily, as the salt rapidly becomes oxidized or changed into a sulphate. Or :

1173. R.	Calcii sulphidi,	gr. $\frac{1}{10}$ – $\frac{1}{2}$	
	Sacchari lactis,	gr. x.	M.

Four to six of these doses a day for an adult.

The treatment must be continued several weeks in order to effect a cure.

Calcis Aqua is sometimes productive of benefit in long-standing scrofula, when gland after gland is attacked. A tablespoonful should be given in milk three or four times a day.

Calcis Phosphas Præcipitatus has been recommended as an excellent palliative. In scrofulous ulcers it is given with benefit, in doses of gr. viij–xx daily, taken with the meals, so as to be thoroughly mixed with the food. In scrofulous diarrhœa good results are obtained from doses of gr. vj–x daily.

Conium has been strongly advocated in scrofulous affections. Its effects are most marked in favoring the absorption and removal of enlarged glands and in promoting the healing of scrofulous sores. Dr. BAUDELOCQUE, of Paris, obtained excellent results from its use in the treatment of children so affected; and more recently, also, Dr. ALEXANDER FLEMING, Sr., Physician to the Queen's Hospital, Birmingham. (*British Medical Journal*, February, 1871.) He says for twenty years he has adopted the following plan of administering it, with good results: The fresh green fruit is mixed with its own weight of white sugar, and reduced to a pulp. Five grains or more of this conserve are given three times a day. It loses its activity in three or four weeks, and must be renewed. *Conine* has been recommended in strumous ophthalmia. (Page 694.)

Ferri Carbonas. Dr. BYFORD prefers this form of iron to all others in scrofulous affections. He gives it pure, gr. x–xij, thrice a day, suspended in thick mucilage.

Ferri et Ammonia Citras is a useful remedy, particularly recommended by its mild taste, which adapts it for administration to children.

Ferri Bromidum has been recommended in ointment, as an application to scrofulous swellings:

1174. R.	Ferri bromidi,		
	Glycerini,	āā	1 part
	Adipis,		14 parts. M.

Ferri Iodidum, in the form of the officinal syrup, is a powerful remedy in all forms of scrofula.

Hydrargyrum. In infantile scrofula, especially during the first three years of life, Dr. WILLIAM H. BYFORD considers mercury the most efficacious of all remedies. He prefers to give calomel or the corrosive chloride in very small doses, combined with taraxacum (which see.) The undoubted value of mercurials in many cases is no doubt owing, as has been suggested by Dr. JACOBI, to the presence of a syphilitic taint in the child, frequently putting on scrofulous forms. As this taint is probably present in half the children born in large cities, its early detection and treatment are of first importance. The best preparation is probably the bichloride. (Page 761.)

Iodum and its compounds are the most efficient remedies we possess in scrofulous affections. They are employed both externally and internally. It may be administered alone or in combination. An excellent method is *iodized milk* :

1175. R.	Iodine,	1 part	
	Alcohol,	10 parts	
	Fresh, warm milk,	90 parts.	M.

Its external use as an absorbent is often disappointing, unless backed by an appropriate internal and hygienic treatment. Mr. FURNEAUX JORDAN states that it should not be applied directly to the enlarged gland, but a short distance from it, as to the nape of the neck when the cervical glands are involved. Thus applied, in his hands it never fails to bring about reduction.

Juglans Regia. The common European walnut has a high reputation in France and Germany for its specific action in scrofula. Professor NEGRIER, of Angiers, recommends that children so affected take a tea-cupful of an infusion of the leaves, two, three or four times a day ; or, as an equivalent, gr. vj of the aqueous extract. At the same time, a strong decoction is applied to the ulcers, and to the eyes as a collyrium.

Lappa. The burdock has an extensive popular reputation in scrofulosis. The root is used as a decoction, (3j to Oj,) a fluid ounce thrice daily, or the fluid extract, which may readily be made into a syrup. It is said to be particularly useful in scrofulous skin diseases.

Morrhua Oleum is of the greatest benefit in the scrofulous or tuberculous diathesis, but scrofulous glandular enlargements are generally but slightly influenced by it. After, however, suppuration has taken place, the action of the oil is more manifest. Discharges from scrofulous abscesses often speedily disappear under its use. In scrofulous diseases of the skin, joints and bones, as well as in scrofulous ozæna, otorrhœa and ophthalmia, it is productive of excellent results, when persevered in and accompanied by good hygienic treatment. (Pages 761, 762.)

Phosphoricum Acidum Dilutum has been strongly recommended, in doses of ℥v, gradually increased to ℥xx or more, in infusion of calumba. Thus given it may be continued for a long time without unpleasant effects.

Pipsissiwa or *Chimaphila*, has been much lauded by Professor GEORGE B. WOOD, in external forms of scrofula. He states that a long experience with it leads him to place it, in regard to its power over the disease, next to cod-liver oil, iron and iodine.

Phytolacca Decandra. This is by many American practitioners esteemed a

valuable remedy in general scrofulous cachexia. Dr. C. H. FORT, of Tennessee, has obtained excellent results in treating numerous scrofulous cases among the negroes and half-breeds with the following. (*Med. and Surg. Reporter*, March, 1877) :

- | | | | |
|----------|-------------------------------|-------------------------------------|----|
| 1176. R. | Tinct. phytolaccae decandrae, | f. $\frac{3}{4}$ ij | |
| | Tinct. iodi, | | |
| | Acidi nitro-muriatici, | $\bar{a}\bar{a}$ f. $\frac{3}{4}$ j | |
| | Aquae, | f. $\frac{3}{4}$ ij. | M. |

Shake, and take one teaspoonful three times a day.

Of course proper hygienic regulations must be insisted upon. Dr. WM. H. BARRY, ex-president of the Arkansas State Medical Association, has also reported extraordinarily good results from this agent. (*Sz. Louis Clinical Record*, June, 1877.) He generally uses the following formula :

- | | | | |
|----------|--------------------------------|---------------------|----|
| 1177. R. | Fl. ex. phytolaccae decandrae, | f. $\frac{3}{4}$ ij | |
| | Syrupi sarsaparillae, | f. $\frac{3}{4}$ v. | M. |
- Teaspoonful three times daily.

Tincture of the fresh root, he thinks, is better than the fluid extract.

- | | | | |
|----------|---------------------|------------------|----|
| 1178. R. | Radice phytolaccae, | $\frac{3}{4}$ ij | |
| | Spiritus frumenti, | Oij. | M. |
- Digest eight days. Take a tablespoonful thrice daily.

Potassii Chloras, in doses of gr. v-xx, four times daily, in pure water, is highly spoken of as a remedy in scrofulous enlargements and ulcerations. As a local application to swellings and enlarged scrofulous joints, the following ointment may be used :

- | | | | |
|----------|---------------------|------------------|----|
| 1179. R. | Potassii chloratis, | $\frac{3}{4}$ ij | |
| | Adipis, | $\frac{3}{4}$ j. | M. |

Potassii Iodidum. For removing strumous enlargements and deposits of aplastic and tuberculous matter, Mr. ERICHSEN has found the following formula extremely useful for adults, the dose being proportionally diminished in the case of children :

- | | | | |
|----------|------------------------|----------------------------------|----|
| 1180. R. | Potassii iodidi, | | |
| | Potassii chloratis, | $\bar{a}\bar{a}$ $\frac{3}{4}$ j | |
| | Potassii bicarbonatis, | $\frac{3}{4}$ iij. | M. |

Divide into twelve powders, of which one is to be taken night and morning in a half-pint of warm milk.

Drs. MEIGS and PEPPER recommend the following combination in children :

- | | | | |
|----------|----------------------|-----------------------|----|
| 1181. R. | Potassii iodidi, | gr. xlviii | |
| | Syrupi ferri iodidi, | f. $\frac{3}{4}$ ij | |
| | Syrupi zingiberis, | f. $\frac{3}{4}$ x | |
| | Aquae, | f. $\frac{3}{4}$ iss. | M. |

A teaspoonful, thrice daily, in water, at five years of age.

Potassæ Liquor, in doses of \mathfrak{m} xxx–lx, three times a day, is said to frequently diminish scrofulous tumors, without, however, exerting any influence on the diathesis.

Sarsaparilla for generations has had a high reputation in scrofulous diseases. There is, nevertheless, a wide diversity of opinion about it, many careful observers rejecting it as of no value whatever.

Stillingia has long been a popular remedy in the various forms of scrofula. In children with enlarged cervical glands, muco-purulent discharge from the nose, tumid abdomen, pasty complexion, scrofulides on the skin, and white stools, its steady use will be found very serviceable. It is best given in fluid extract, dose gtt. x–xx, thrice daily, after eating, to a child.

Sulphur formerly enjoyed a good reputation in the treatment of scrofula, but it has fallen into disuse. Attention has lately been called to it as a valuable remedy.

1182.	R.	Sulphuris,	\mathfrak{D} ij–iv	
		Syrupi,	f. \mathfrak{z} j	
		Aquæ,	f. \mathfrak{z} vij.	M.

Two tablespoonfuls, once or twice a day, in a tumblerful of milk.

Taraxacum. Dr. WM. H. BYFORD, of Chicago, in a report on scrofula, (*Trans. Am. Med. Association*, 1855,) says that taraxacum, of all the vegetable alteratives, is the most efficacious in removing scrofulous indigestion in both children and adults. It should not be given by grains, but as much as the stomach will bear.

Tayuya has had considerable testimony, as an anti-scrofulous agent, from Italian physicians.

Vieirine, a bitter principle from the bark of the royal *Remigia Ferruginea*, has been introduced recently in the treatment of scrofula. It appears to be at least an efficient tonic in such cases.

Zinci Iodidum has been used externally in enlarged lymphatic glands.

1183.	R.	Zinci iodidi,	\mathfrak{z} j	
		Adipis,	\mathfrak{z} j.	M.

DIETETIC AND HYGIENIC REMEDIES.

The Grape Cure. In all the dyscrasiæ, but especially in scrofula, the *grape cure* is popular in France, Switzerland and Southern Germany. It consists of confining the diet exclusively to fresh ripe grapes, and is necessarily limited to the fall season.

The first meal is taken in the house in the early morning, and is made up of from one to six pounds of grapes. The others, at noon and at evening, should be less in quantity, and eaten in the vineyard: and finally a moderate amount may be consumed before retiring.

Bread and water are usually allowed in addition, but no other food or drink whatever; and this strict diet must be persevered in from four to six weeks. Very favorable results are reported from it, both in cases of scrofulosis where there is an unhealthy deposit of fat, and those where there are emaciation and swollen or suppurated glands.

There would be no difficulty in carrying it out in many districts of this country, where the vine flourishes abundantly.

Malt Extract. This is a very valuable adjuvant in the treatment of scrofula and tubercle. It improves the nutrition and often arrests the progress of the disease. It accomplishes the good results of stimulants without their injurious period of reaction and other baneful effects.

Mineral Waters. The most appropriate mineral waters in scrofula are the *saline* group, especially those containing iodine. In England, Cheltenham; in Germany, Kreuznach, Kissingen, Hombourg and Wiesbaden; in France, Balaruc, Bourbonne and Lamott, are especially celebrated in strumous complaints. In America, the St. Catherine's Wells, Canada; Spring Lake Well, Michigan; the Saratoga waters and the Ballston Spa waters, are similar in composition and use. Sea-water, which is closely akin to the saline mineral waters, will be spoken of separately.

The Sulphur Waters have by some physicians been heartily recommended, by others as much condemned, in strumous affections. According to the authors of the *Dictionnaire des Eaux Minerales* (Paris, 1860,) their employment will generally give very satisfactory results if confined to those cases where the disease manifests itself by superficial lesions of the skin, and by obstinate catarrhal affections, strumous ozæna, and the like. They are distinctly contra-indicated where inflammatory excitement or congestion is present.

For particular cases, where anæmia and impoverishment of the blood are marked symptoms, the *chalybeate* waters are useful.

In all cases the use of these agents must be long continued; and it is better to take them at the springs, as patients more willingly submit themselves to proper regimen there than at home.

Sea-Air and Water. Few agents exert a more happy influence on the strumous diathesis than sea-water. In France a large institution has been established at Berck, where annually several hundred scrofulous children are sent for treatment. In its earlier years, from sixty to seventy per cent. were cured, but since experience has taught a more just discrimination of cases, yet more favorable reports have been made.

According to Dr. BERGERON (*Annales d' Hygiène Publique*, 1868), the marine treatment is especially indicated where there are ganglionic enlargements not yet passed to the state of suppuration, cold abscesses, gummata, or white swellings of the joints.

Hardened cervical glands not unfrequently are completely resolved.

On the other hand, where the prominent symptoms are chronic strumous blepharitis and ophthalmia, scrofulides of the skin, otorrhœas, deep-seated caries of the bone, and open, obstinate sores, this method of treatment produces little benefit.

The plan adopted is to have the patients bathe twice daily in sea-water, and to drink a small quantity daily, moderate exercise in the open air, substantial food and warm clothing. No drugs whatever are given, and in favorable weather patients are advised to spend most of the time out of doors. The treatment should be continued from three to fifteen months.

PART I.

GYNECOLOGICAL THERAPEUTICS.

INTRODUCTORY.

Before proceeding to the consideration of the therapeutics of particular diseases, some suggestions will be quoted as to the

GENERAL MEDICAL TREATMENT OF DISEASES OF WOMEN.

DR. C. CAROBAK, OF VIENNA.*

In the modern treatment of diseases of females, the attention of physicians is more fruitfully addressed to defining the indications for the use of known remedies, than to the search for specifics. Of recent years, the introduction into gynecology of so many mechanical aids has led to an undue depreciation of the value of internal and general medication. There is no doubt that cases which admit of local as well as general treatment, recover more rapidly, but it is unwise and injurious to neglect the latter, as is often done.

Besides the general rules for indications and contra-indications, there are, in the treatment of women, many conditions to consider, which have reference to their psychical character and to the peculiar seat of the disease. It is not rare to see unpleasant complications arise from any attempt at local treatment, and improvement commence when this is wholly suspended and measures addressed to the general system alone, are employed. Local treatment is occasionally observed to increase the nervous irritability, to develop severe hysteric attacks, and even lead to mental alienation.

**Handbuch der Frauenkrankheiten*, I. Edited by Billroth. 1879.

The causes of such conditions are the heightened sexual sensations, the sense of shame, the obligatory continence often required, and a number of similar emotions. When they lead to the results mentioned, all local interference should be suspended, and the erethism of the system reduced by anodynes, warm baths, exercise, change of air, scene and society, etc. Hydropathic treatment has a high reputation in such cases, but the procedures employed in institutions devoted to this branch are often too decided to exert good results on an over-excited nervous organization. Dr. C. has himself derived very positive benefits from the use of *oxygen inhalations* in allaying such general nervous erethism.

It is evident, therefore, that before any treatment is undertaken, the psychical condition of the patient should be carefully considered. There are some cases—fortunately not many—in which local treatment must be absolutely prohibited from the outset. In others, it should only be commenced after a preliminary general treatment. The patient must be convinced of the necessity of the local measures. They should be explained to her, and she should be assured that only the most indispensable examinations, etc., will be conducted. The moral support of the patient should be sought for, and her confidence in the operator heightened as much as possible.

The physical strength should be maintained at the highest point during local treatment. Feeble individuals, and those suffering from dyspeptic, gouty and other constitutional maladies, should receive treatment with a view to lessening these complications. Here is where health resorts, medicinal springs and sea bathing come happily into play, and they will often be very efficacious.

All local treatment is to be avoided, when possible, during pregnancy, for fear of leading to abortion or premature delivery. So far as the mother herself is concerned, it is probable that her risks under operations while in this condition have been unduly magnified by some writers. Lactation is another period which should not be chosen for local treatment unless the demand is urgent, inasmuch as the concomitant dietetic measures, enforced rest, etc., will very probably interfere with the secretion of the milk. The menstrual period was long considered as a contra-indication to any kind of local treatment. As a general rule, the increased hyperæmia of the parts may be supposed to justify this, but for some operations, on the contrary, it is just the period to select. Thus SIMON has shown that in plastic operations on the female genitals, healing by the first in-

tention is favored by the congestion which then prevails. In a general way it may be said that the most favorable period at which to begin local treatment is a few days after the menstrual flow has ceased.

In regard to *cohabitation* during local treatment, it must be considered, in nearly all cases, as positively injurious and should be prohibited. It induces local hyperæmia, and increases the nervous irritability; and as it may also lead to pregnancy, and thus completely interrupt the progress of the treatment, it is best to discourage it altogether.

Women experience the sensation of *pain* in very different degrees. Robust and vigorous ones may suffer greatly from a slight operation which a feeble and sickly person will bear without complaint. As severe pain acts injuriously on the nervous system, it must be avoided by the administration of anæsthetics. It may be observed that the vagina is less sensitive than the external genitalia, and that the vaginal portion of the cervix is scarcely at all sensitive in its ordinary condition. For general anæsthesia, the same rules apply as in surgery, and the same contra-indications. They may be administered in the knee-elbow or any other position, but it is essential to have a competent assistant present to give the anæsthetic.

Of the *anæsthetics* employed, chloroform and ether continue to be the most popular, or a mixture of both with alcohol. Several gynecologists, as SPENCER WELLS, HEGAR and KALTENBACH, have lauded the *bichloride of methylene*. It should be noted that when the finger or an instrument is introduced rather rudely into the rectum or vagina of a patient under anæsthesia, it is followed by hoarse, stertorous breathing, which is not, however, of alarming significance.

Local anæsthesia is not very reliable in operations about the vagina, and is mostly confined to parts easy of access and small operations, as puncturing an abscess, etc. As such may be mentioned ice, cold mixtures, vapor of ether and chloroform, and compression. Of these the most efficient is the ether pulverizer of RICHARDSON.

In recent years, *massage* has been introduced into gynecology as an efficient means in causing the absorption of deposits, in restoring vigor to atonic muscles, and in diminishing local irritability. BRANDT, of Stockholm, has laid down the details of the method, and advocated it in an extensive line of maladies of the uterus and its annexes. His recommendations have not been well received by gynecologists in general, and it is alleged that grave accidents have

at times followed the manipulations. But it cannot be denied that in some cases excellent results have been obtained, when all other resources of medical art had failed.

The most serious difficulty seems to be in the dislike of the patient to have the genitalia subjected to the prolonged manipulation required. The essential element of massage is *intermittent pressure*. This may be obtained by centripetal stroking and rubbing with the hand and fingers. The part operated on should have a firm base, as one of the pelvic bones, etc. BRANDT advises also light taps, repeated pressure with the fingers tips, etc., sometimes on the outer surface of the abdomen, sometimes with the finger in the vagina. The operator may also take the uterus between the fingers of both hands—the one in the vagina, the other externally—and exercise upon it gentle, continued or intermittent pressure. The massage should be at first very gentle and continued but for a brief session; later the pressure may be increased and the time prolonged, the rule being that increased painfulness is a sign to discontinue. ZIEMSEN recommends that it be applied in a warm bath. After the process, the patient should remain for some time in entire rest, as the operation is followed by decided local hyperæmia.

BALNEO-THERAPY IN DISEASES OF WOMEN.

In the United States, comparatively little systematic attention has been paid to the treatment of diseases of women by mineral and medicinal waters. We therefore select from one of the most recent German works on this subject, by Dr. IGNAZ MEYR, (*Anleitung zur Wahl der Curorte*, Wien, 1880,) the principles which, in Europe, have been proven most efficient in this method of therapeutics.

Dr. MEYR states that balneo-therapy has fully vindicated its value in this class of maladies. This is especially true of chalybeate water, sulphur springs, those holding in solution iodine and bromine, and the *sool or saline baths*.

The diseases in which the best effects have been observed, are the anomalies of menstruation, affections of the uterus and ovaries, and in sterility.

Where the menstruation is deranged, with concomitant anæmia, dyspeptic symptoms, nervous irritability and loss of vigor, chalybeate

waters may be advantageously used both internally and as baths. In lymphatic and scrofulous subjects, sea bathing is to be recommended, as also in membranous dysmenorrhœa. The ascending douche is a powerful agent, for which the necessary apparatus may be found at many European springs, as at Franzenbad, Pyrmont, etc. In sluggish temperaments, where painful menstruation is not associated with any change in the texture of the uterus, local baths of *dry carbonic acid gas* are indicated. Where the nervous erethism is marked, the prolonged use of the cold water treatment is often efficacious.

In congestive dysmenorrhœa, with chronic metritis and induration, such sool baths as are found at Ischl, Gmunden, etc., or the iodine and bromine waters of Heilbronn, Kreuznach, etc., prove themselves of value.

When menstrual irregularity proceeds from disturbance of the cutaneous functions, suppression of the perspiration, hemorrhoidal disease or venous hyperæmia, especially in lymphatic individuals, the sulphur waters have special applicability. In France, the warm alkaline springs of Plombières and those of Eaux Chaudes, in the Pyrenees, are famous in such cases.

When menorrhagia is due to anæmia, atony of the uterus or granular ulceration of the cervix, the chalybeate waters, both internally and as baths, and injections, are called for; but when the excessive flow is connected with venous stasis, hyperæmia of the liver, heart disease, emphysema of the lungs, abdominal tumors or the climacteric epoch, the discutient alkaline springs, as Marienbad, Carlsbad, etc., and the saline waters of Franzenbad, Tarasp, etc., will be more appropriate, and will render essential service.

Against chronic parenchymatous metritis, with infarcts and exudations, cold local and general douches are recommended, and the use of the alkaline-saline springs, Homburg, Ems, etc. Where chronic exudations are the most prominent symptom, real and prompt benefit is often obtained from sool baths, the iodine and bromine waters, and sulphur springs. The former should be preferred where there is a scrofulous diathesis present, the latter when there is a prominence of nervous erethism, or where the infarct follows a puerperal inflammation or deficient involution. Chalybeate waters in these cases are only appropriate when marked anæmia is to be combated, and sea bathing should not be advised as long as the exudation remains unabsorbed.

Various waters containing iodine and bromine have been at times in repute for producing absorption of neoplasms in and around the uterus. They certainly do occasionally diminish the volumes of such growths, but their use is to be discountenanced when fever or much pain is present, or when the tumor is of rapid growth. Springs of repute in such cases, are Kreuznach Halle, in Austria, Wildegg and Saxon, in Switzerland, and Castrocara, in Italy, which last-mentioned has also a reputation for diminishing hypertrophied breasts and mammary tumors.

Many waters are used with advantage in leucorrhœal cases. Where simple anæmia is present, the iron waters are appropriate; where the patient is scrofulous, those containing iodine and bromine, and the soot baths; where the vaginal mucous membrane is much relaxed, local douches of carbolic acid gas, and gas of pine-tree needles, are adopted with good results. Waters containing chloride of sodium have also a just reputation in such cases.

Sterility, when, as is not unfrequently the case, it depends on general debility and anæmia, may at times be removed by the iron springs; and in other instances, probably where the sterility depends on a hyperacidity of the vaginal secretion, or similar constitutional cause, an alterative alkaline water often acts with satisfactory promptness. In Germany, the alkaline waters of Ems, and those of Wolkenstein, in Saxony, are famous for facilitating conception. The same is true of the warm alkaline springs of Plombières, in France, and those of Bormio and Krumbach, and of Citara, on the island of Ischia, etc. The last-mentioned is peculiarly tonic and stimulating, suitable for pale and weakly women.

Some obstinate cases of pruritus vaginæ, especially those occurring about the change of life, have been greatly relieved by warm alkaline and sulphur waters, used both internally and locally.

It is needless to say that the employment of these balneological means does not exclude treatment by the usual methods. It is only maintained that in many cases where the latter, used alone, fail to restore health, it can be recovered by the aid of the methods just rehearsed.

PLAN FOR A GYNECOLOGICAL EXAMINATION.

A compact schedule for "case-taking" in gynecology was published in *Edinburgh Medical Journal*, February, 1880, by Prof. A. R. SIMPSON. It is, in some respects, an improvement on any previously suggested, and for the convenience of practitioners we here append it:

DISEASE.

ANAMNESIS.

1. NAME ; AGE ; OCCUPATION ; RESIDENCE ; MARRIED, SINGLE, OR WIDOW ;
DATE OF ADMISSION.
2. COMPLAINT AND DURATION OF ILLNESS.
3. GENERAL HISTORY OF—(a) Present Attack ; (b) Previous Health ; (c) Diathesis ; (d) Social Condition and Habits ; (e) Family Health.
4. SEXUAL HISTORY.
 - (1) *Menstruation*—
 - A. Normal—(a) Date of Commencement ; (b) Type ; (c) Duration ; (d) Quantity ; (e) Date of Disappearance.
 - B. Morbid—(a) Amenorrhœa ; (b) Menorrhagia ; (c) Dysmenorrhœa.
 - (2) *Intermenstrual Discharge*—(a) Character ; (b) Quantity.
 - (3) *Pareunia*.
 - (4) *Pregnancies*—(a) Number ; (b) Dates of First and Last ; (c) Abortions ; (d) Character of Labors ; (e) Puerperia ; (f) Lactations.
5. LOCAL FUNCTIONAL DISTURBANCES OF—(a) Bladder ; (b) Rectum ; (c) Pelvic Nerves and Muscles.
6. GENERAL FUNCTIONAL DERANGEMENTS OF—(a) Nervous System ; (b) Respiratory System ; (c) Circulatory System ; (d) Digestive System ; (e) Emunctories.

PHYSICAL EXAMINATION.

1. GENERAL APPEARANCE AND CONFIGURATION.
2. MAMMÆ.
3. ABDOMEN—(a) Inspection ; (b) Palpation ; (c) Percussion ; (d) Auscultation ; (e) Mensuration.
4. EXTERNAL PUDENDA.
5. PER VAGINAM—(a) Orifice ; (b) Walls and Cavity ; (c) Roof ; (d) Os and Cervix Uteri.
6. COMBINED EXAMINATION—(Abdomino-Vaginal, Recto-Vaginal, Abdomino-Rectal, Abdomino-Recto-Vaginal, Abdomino-Vesico-Vaginal)—

- (1) *Uterus*—(a) Size ; (b) Shape ; (c) Consistence ; (d) Sensitiveness ; (e) Position ; (f) Mobility ; (g) Relations.
- (2) *Fallopian Tubes*.
- (3) *Ovaries*—(a) Size ; (b) Situation ; (c) Sensitiveness.
- (4) *Peritoneum and Cellular Tissue*.
- (5) *Bladder*. (6) *Rectum*. (7) *Pelvic Bones*.
7. USE OF—(a) Speculum ; (b) Volsella ; (c) Sound ; (d) Curette ; (e) Aspiratory Needle ; (f) Tent or Dilator.
8. PHYSICAL CHANGES IN—(a) Nervous, (b) Respiratory, (c) Circulatory, (d) Digestive, (e) Emunctory Organs.

DIAGNOSIS.

PROGNOSIS.

TREATMENT.

PROGRESS AND TERMINATION.

Every case will not, of course, demand inquiry regarding every point registered in the several paragraphs. But, on the other hand, any case that comes before us may demand inquiry as to any of these points.

CHAPTER I.

DISEASES OF THE OVARIES, DISORDERS OF MENSTRUATION AND GENERAL DISEASES.

Synopsis of Diagnostic Points—Treatment—Ovaritis, Acute and Chronic (Ovarian Neuralgia, etc.)—Extra-Uterine Pregnancy—Ovarian Tumors—Amenorrhœa — Dysmenorrhœa — Menorrhagia and Metrorrhagia.

SYNOPSIS OF DIAGNOSTIC POINTS.

OVARITIS.

The principal diseases of the ovaries are acute, subacute, and chronic ovaritis or oöphoritis, and ovarian tumors.

The following are the distinctions between the two forms of inflammation of the organ.

Acute Ovaritis.

Preceded by sudden suppression of menstruation, gonorrhœa, pelvic peritonitis or external violence.

Fever, perhaps chill; severe pain in one or both iliac fossæ. Great sensitiveness over the ovary, which may sometimes be felt as a round ball.

Abscess or resolution in four to six days.

The disease is rare.

Chronic Ovaritis.

Preceded by displacements of uterus, irregular menstruation, or neglect of precautions at menstrual epoch.

Fixed pain over one or both ovaries, dysmenorrhœa and hysteria, pain in rectum and down thighs, worse after defecation, leucorrhœa, sometimes sterility and dyspareunia.

Chronic, and not entirely curable.

The disease is quite common.

In the subacute form, by the recto-vaginal touch, we may grasp with the two fingers a smooth, roundish body, as large as a cherry, producing exquisite pain. This sign is characteristic of subacute oöphoritis, for neither simple morbid congestion of the ovary, nor oöphoritis, nor retro-uterine hematocele, nor metritis, nor lymph-

denitis, nor perimetric phlegmon, will give the phenomenon of pain so well marked and so precisely localized.

It should be remembered that gonorrhœal infection is an occasional cause of acute ovaritis, in which case specific treatment is demanded after the first symptoms have abated.

In chronic ovaritis ATTHILL has observed that persistent vomiting is a prominent symptom.

In a lecture reported in the *London Medical Times and Gazette*, Dr. J. MATTHEWS DUNCAN states that occasionally this disease is seen as a consequence of fever, especially typhoid, cholera and rheumatism; in close connection with these diseases, it is very frequently a result of the use of alcoholic liquors, even when these are not taken to excess; and this view of the causation of the disease is frequently corroborated in the most gratifying manner, if not proved, by the cure which follows upon the adoption of strictly temperate living. A great mass of cases occur as a consequence of recent marriage, suppression of menstruation, abortion, and delivery at the full time, when there is no evidence of blood-poisoning.

OVARITIS, ACUTE AND CHRONIC.

WILLIAM GOODELL, PHILA.

This author says: "As headache does not necessarily mean brain disease, so ovary-ache does not mean ovary disease. Time and again have ladies been sent to my office to have their ovaries taken out; their ovaries were sound, but the nerves were not, and no operation was needed for their correction. So misleading indeed, are the symptoms of a jaded brain and of other nerve strains, under the external livery in which they are often clad, that I have known a jilted maiden to be treated by a cup and pessary, and a bereaved mother douched, tamponed and cauterized for a twelve-month."

Diseases of the ovaries and tubes are so closely related, because of their close proximity, and the functions of one so closely dependent upon the functions of the other, that it has been thought wise to combine the treatment for the relief of both under one heading.

FREUND, (*Therapeutische Monatshefte*, Berlin, Nov. 1889,) commends codeine in all forms of ovarian pain, whether from prolapse, ovaritis, periovaritis or neuralgia. He found this drug to give

prompt and more or less permanent relief, even when given in small doses. No disagreeable results follow its use, such as constipation or diminution of appetite. It does not stupefy. Dose $\frac{1}{2}$ grain, 3 times a day, in pill form.

SLAVIAUSKY (*Gazette de Gynécologie*, Paris, Feb. 15, 1891), claims to have best results with Moyer's pessaries; iodide of potassium internally, hot vaginal douches and massage. He also says that he has found electricity to give excellent results.

All authors agree that when medicines fail, the only thing left is the removal of the offending part. This is all the more important because of the reflex influence of ovarian diseases upon the general health of the patient, and the constant menace to life by a collection of pus in the tubes.

JOSEPH PRICE says (*Annals of Gynecology and Pædiatry*, Phila., Dec., 1889): "There is only one rational treatment for pus anywhere in the body—remove it and its cause. Electricity has no place here. Vaginal drainage is insufficient. Abdominal section is here the ideal operation; for not only can the pus be evacuated thoroughly and completely, but the abscess cavity, with its pyogenic membrane, can be extirpated. Short anesthesia, short incision, rapid enucleation of the diseased tissues, copious flooding of the peritoneal cavity, carefully-placed drainage and accurate closure of the incision, will give the quickest relief and shortest recovery, and, as far as the disease is concerned, absolute cure."

DR. L. DE SINETY, OF PARIS.

This author believes that true ovaritis, that is, an inflammation limited to the ovary, is excessively rare. Generally, what is so called is pelvi-peritonitis and lymphangitis. Patients should keep the bed, and take warm baths and continued vaginal injections. Local blood-letting and leeches to the abdomen are appropriate. Against the pain, chloral, chloroform and morphine, hypodermically, are required. The rectum should be emptied by enemas, the bladder by the catheter.

The chronic form is nearly always associated with anæmia, and will be benefitted by iron and quinine. Preparations of iodine will also be found of good service; as:

1184. R. Tincturæ iodinii,
Aquaë,

gtt. iij
3 j-ij. M.

This amount three times a day.

This author doubts the existence of the alleged blenorrhagic, syphilitic, and rheumatismal forms of ovaritis, as also that it arises from onanism, excessive venery or menstrual suppression.

PROF. ROBERT OLSHAUSEN, OF HALLE.*

Though opinions differ on the subject, this writer is of opinion that chronic oöphoritis is by no means rare, both among married and unmarried women of youthful years. Its cause is often excessive cohabitation or onanism; but it may follow an acute attack, the result of suppressed menses, metritis, etc.

All cohabitation, as well as fatigue, much walking or standing, are to be forbidden. Local abstraction of blood from the uterus is occasionally useful. The most efficient internal remedies are *iodide of potash* and the preparations of *gold*. The latter was much lauded by NOEGGERATH, who claimed that in twenty-five cases he effected reduction of the swelling in from six to eight weeks by administering gr. ij daily. OLSHAUSEN has not had such good results, but in some cases had witnessed decided benefit.

Anodynes, at the menstrual period, can not often be dispensed with, and blisters to the abdomen are at times useful. A local measure of unquestionable benefit is a moderate-sized soft rubber ring pessary. This fixes the uterus, and prevents dragging. When, however, there is prolapse of the ovaries, it cannot be worn.

As a last resort, the removal of the ovary by the operation of spaying has to be considered.

PROF. J. MATTHEWS DUNCAN, LONDON.†

The writer observes that a great many cases of the chronic forms of ovaritis—which he esteems a very common disease—are almost incurable. When they resist a properly-conducted treatment, it is wisest to give up the attempt at cure.

In every case *rest* is demanded. In severer cases, the patient should keep her bed; marital relations should be suspended, and especially at the menstrual period, should repose be enjoined. In many cases *leeches* applied to the neck of the womb or over the inguinal canal, are very valuable. Of medicines, the most to be relied upon are *corrosive sublimate*, *iodide of potash*, and *bromide of potash*. *Blisters* over the inguinal ring are frequently of decided advantage

**Handbuch der Frauenkrankheiten*. Edited by Billroth, part VI.

†*Lectures on Diseases of Women*, 1880.

in chronic cases. Croton oil or antimonial liniment may be applied to the inguinal canal adjacent to the affected gland.

PROF. GRAILY HEWITT, M. D., OF LONDON.

In acute cases, entire *rest* is essential. When the attack is owing to a chill from exposure, leeches should be applied over the ovaries, followed by hot anodyne poultices. Hot turpentine stupes are also valuable.

In chronic cases, cold affusions and hip-baths are often useful. Sexual indulgence must be strictly limited. At the menstrual periods the patient should remain on the couch, and a stimulating nourishment be avoided. Between the epochs, moderate out-door exercise is valuable. Tartar-emetic ointment or other counter-irritants may be used over the ovary. To relieve pain the following pill is efficacious :

1185. R.	Pulveris opii,	gr. ss	
	Extracti cannabis indicæ,	gr. $\frac{1}{3}$	
	Camphoræ,	gr. j.	M.
For one pill, night and morning.			

EDWARD JOHN TILT, M. D., OF LONDON.

In severe ovario-uterine pain, this practitioner recommends placing a pledget of cotton-wool, soaked in laudanum, or acetate of morphia, near or upon the neck of the womb. This may be repeated daily or every other day. Two or three grains of morphia may be used at a time in this manner.

When the ovaries are congested or inflamed, the best method of treatment is to *leech the womb*. Four leeches may be applied to the cervix a day or two after the flow has ceased. The effect is usually well marked. Blisters and ointments to the hypogastric region only act on the ovaries indirectly, and even double the number of leeches mentioned, when applied over the ovary, do not produce so permanent an effect.

In chronic and obstinate forms of ovario-uterine disease, silk setons applied above the pubes, as recommended by HUGUIER, deserve trial.

For the pelvic and spinal pains of ovario-uterine disease, Dr. TILT recommends rubbing the surface twice a day with one of the following ointments :

1186. R.	Linimenti belladonnæ,	f. $\frac{3}{4}$ ij	
	Glycerinæ amyli,	f. $\frac{3}{4}$ j.	M.

1187. R. Morphine acetatis, gr. x
Glycerine, f. 3^{ss}
Otto rosar., gtt. j
Unguenti petrolei, 3j. M.
1188. R. Potassii iodidi, 3j
Magnesie, gr. v
Otto rosar., gtt. j
Aque, f. 3j
Unguenti petrolei, 3j. M.
- Apply twice daily.
1189. R. Atropine sulphatis, gr. ij
Morphine sulphatis, gr. iv
Olei olive, f. 3j
Olei lavandule, gtt. x
Unguenti hydrargyri fortis, 3j. M.
- A piece about the size of a small walnut is to be rubbed in morning and evening, over the sensitive ovary.

J. WARING CURRAN, M. D., LONDON.

Ovarian Neuralgia.—This writer maintains that in various instances we meet with true *ovarian neuralgia*, independent of any local lesion, and more remediable by constitutional than by local treatment. He identifies it with the *ovarian irritation* of Dr. CHURCHILL. His prescription for such cases is :

1190. R. Ammonie muriatis, 3ij
Tincture aconiti, f. 3ij
Syrupi aurantii corticis, f. 3 viij. M.
- A teaspoonful thrice daily in the treatment of *ovarian neuralgia*.

Dr. CURRAN states that this combination has an almost magical influence in many cases. He reports (*Medical Press and Circular*, August 9th, 1868,) six cases in which various sedatives and anodynes had been tried in vain. In all, he found that before the above mixture was finished by the patient, the pains had entirely ceased.

Dr. T. J. NEWMAN, of Chicago, confirms the usefulness of this mixture, and records (in the *Chicago Medical Examiner*, for November, 1869,) three cases of neuralgia of the ovaries treated by it with success, after the failure of other remedies.

In the same painful complaint, Dr. ROBERTS BARTHOLOW has obtained excellent results from the following recipe :

1191. R. Extracti belladonnæ, gr. iv
Extracti stramonii, gr. v
Extracti hyoscyami, gr. v
Quinine sulphatis, ʒij. M.

Make twenty pills. One three times a day, in ovarian neuralgia and neuralgic dysmenorrhœa.

DR. J. MILNER FOTHERGILL, OF LONDON.

Ovarian Dyspepsia.—This writer has pointed out that a frequent complication of subacute ovaritis and often the most prominent symptom is a form of gastric atony which he calls "ovarian dyspepsia." (*American Journal of Obstetrics*, January, 1878.) For the treatment of such cases he recommends as the great therapeutic agent, the *bromide of potassium*.

1192. R.	Magnesiæ sulphatis,	3j	
	Potassii bromidi,	℥j	
	Infusi gentianæ,	f. 3j.	M.

This amount three times a day, with an aloes and myrrh pill at bed-time, if necessary.

A blister should be applied over the tender ovary.

For the vaginal loss, injections of astringents in solutions, by means of a Higginson's syringe, or the small india-rubber ball and tube used to give babies enemata (much better in every way than a glass syringe), must be used twice a day, with hip-baths daily, if the patient's condition will admit of it. This is far from unimportant. When there is menorrhagia, quietude and the avoidance of all warm drinks and food during the flow, are desirable. For the imperfect digestion, light and easily digestible food, milk, if necessary, combined with an alkali, or beef tea with a little cream in it, or custard, are indicated. Such food should be given at short intervals, and small quantities at a time. The irritable stomach will often retain small quantities of food when larger amounts are at once rejected.

LAWSON TAIT, F. R. C. S., BIRMINGHAM.

This writer (*Diseases of Women*, 1879,) divides inflammatory affections of the ovaries into (1) ovarian hyperæmia, (2) acute ovaritis, (3) chronic ovaritis.

Ovarian Hyperæmia.—This is frequently met with in young girls and in young married women with vigorous husbands, and in prostitutes of tender age. The patient should rest in a prone position for a few days before, during and after the menstrual period; a counter-irritant should be placed over the ovarian region just before the flow is expected; and she should take *ergot* before and during the period, and the salts of potassium continuously during the intermenstrual time. His favorite formula is:

1193. R.	Ergotinæ (Bonjean),	gr. ss	
	Lupulinæ,	q. s.	M.
For one pill.			

In addition to this, between the epochs :

1194. R. Potassii bromidi,

gr. v-x.

For one dose, night and morning, after meals.

All cases of ovarian hyperæmia which Mr. TAIT has met with at puberty, have yielded to this treatment, and most of those of a later age.

Acute and Chronic Ovaritis.—No time can be laid down where ovarian hyperæmia passes into ovaritis, nor between the acute and chronic forms of the latter. The treatment should consist of a local and systemic rest, and the administration of ergot. Locally, counter-irritation in the inguinal region, with linimentum iodi every morning until the spot is sore, and this repeated frequently, will nearly always do good. Bromide of potassium may be combined with the ergot. Arsenic and cod-liver oil are also useful, and some cases will yield to large doses of quinine, when everything else has failed.

DR. A. J. C. SKENE.

A. J. C. SKENE (*Medical News*, June 13, 1891), says that in this affection, the treatment should be both general and local. The indications for general treatment are to lessen the blood supply and relieve pain by correcting the deranged innervation.

This, in the early stage, demands rest in the recumbent position. At the same time general exercise is advised, either by massage, or by gymnastics in the reclining position. The digestive organs should be carefully watched and kept free by means of small doses of mercury combined with a laxative.

The saline laxatives are the best for the purpose.

To relieve pain and lessen the hyperæmia, the bromide of sodium and the fluid extract of *hydrastis canadensis* are the most potent agents. They are given in combination—20 to 30 grains of the bromide and 10 to 20 minims of the *hydrastis* three times a day until the physiological effects of the bromide are noticed in a mild degree. Sometimes the bromide fails to relieve the menstrual pain. In that case, ten grains of salicylate and five grains of antipyrine given between meals answer for some time. In the unmarried, local treatment should be avoided.

Hot sitz-baths, counter-irritation and hot vaginal douches comprise about all that should be done in the case of a young woman. In married women a wider range is allowable. A small tampon,

saturated with equal parts of tincture of belladonna and glycerine applied behind the cervix and allowed to remain for forty-eight hours, followed by a hot douche, will be found very useful. This is continued for about five days, and is followed by an application of iodine to the vaginal vault.

Under this treatment the pain and tenderness gradually disappear. The general health improves and the pelvic congestion subsides.

At this point alteratives become necessary. Small doses of bichloride of mercury and syrup of the iodide of iron, should be given in doses as large as can be well borne.

Sulfonal is of great value to produce sleep.

The treatment must be a long-continued one, and requires patience and careful watching.

NOTES ON REMEDIES.

Ammoniæ Murias is often efficient in ovarian neuralgia.

Antimonii et Potassii Tartras. Counter-irritation by means of tartar emetic ointment is of service in subacute ovaritis.

Atropia, hypodermically, $\frac{1}{10}$ — $\frac{1}{20}$ grain in ovarian neuralgia. Belladonna in plaster is often of service.

Brominium. BARNES says that this agent seems to possess a specific power in diminishing ovarian irritation.

Camphora is very serviceable in ovarian pain.

Iodum. Painting the sensitive regions with tincture of iodine is a useful means of counter-irritation.

Opium. Vaginal suppositories of opium, gr. ij, made up with paraffin, frequently give great relief. ARAN was accustomed to pour two drachms of laudanum daily, or every other day, through a speculum, on and into the cervix.

Potassii Bromidum. This agent is asserted to possess almost specific powers in reducing ovarian irritation, and pain, nymphomania, etc.

Potassii Iodidum is of decided value.

Potassa cum Calce. In chronic ovaritis, BARNES recommends as a means of derivation, setting up a small issue or eschar on the vaginal portion of the uterus with this agent.

Veratria. Dr. L. ATTHILL has seen great relief from the local application of equal parts of the ointment of veratria and iodide of potassium.

Blisters over the ovarian region are frequently of service in the subacute forms.

Enemata. Warm water enemata, retained as long as possible, are often of great benefit.

Ice applied in a bag to the painful spot, is said by Dr. TILT to relieve the pain of acute ovaritis.

Leeches are a very valuable means of relief.

Oleum Terebinthinæ, used in the form of hot epithems, is frequently available.

Ovariectomy. As a last resource in severe ovaritis, the organs may be removed by BATTEY'S operation.

Pessaries. A light pessary, to support the womb and keep the ovaries in their normal position, will often prove of decided advantage.

Unguentum Hydrargyri. Dr. E. J. TILT, of London, recommends in sub-acute ovaritis :

1195. R.	Unguenti hydrargyri,	3ij	
	Extracti belladonnæ,	3j	
	Ceræ,	3ij	
	Adipis,	3j.	M.

Warm water enemata, and gentle aperients (castor oil), should accompany the treatment.

SALPINGITIS.

ROBERT BELL (*The British Gynæcological Journal*, May, 1891,) believes that proper medical and hygienic treatment will do away with the necessity of surgical interference. He advises, first of all, a thorough regulation of the bowels. If there is endometritis, which is highly probable, the uterus should be curetted, and bi-weekly intra-uterine application of iodized phenol made, after which a tampon saturated with the glycerine of alum and boracic acid is introduced into the vagina.

If the uterus is displaced, it should be put in position by means of the uterine probe and supported by means of the tampons employed.

If there is a lacerated cervix, which helps to keep up the endometritis, a trachelorrhaphy will be necessary. In the author's opinion, salpingitis is almost always due to extension from endometritis. If this treatment does not suffice, the patient must have physical and sexual rest. Massage is beneficial. If adhesions exist they should be broken down each time the tampon is introduced, by a system of massage per vaginam. Under these circumstances, the tampon should be soaked with a ten per cent. solution of ichthyol and boracic acid in glycerine. If this treatment does not suffice, the offending organs should be removed.

ALEXANDER RIZKALLAH (*Centralbl. f. Gynäkologie*, January 3,

1891), in speaking on the subject of salpingitis, comes to the following conclusions:

1. The treatment of salpingitis must differ in accordance with the variety of the disease.
2. Salpingectomy is not the only remedy. This operation is indicated in cases of old pyosalpinx, large hæmatosalpinx and tubercular salpingitis, as soon as these conditions are diagnosed.
3. In cases of catarrhal salpingitis, this operation is an unnecessary mutilation.
4. In these cases, the uterus should be curetted and injected with iodine; in all fresh cases of pyosalpinx and slight cases of hæmatosalpinx this method is to be given a trial.
5. If the catarrhal form is associated with intolerable pain, due to cystic degeneration or pathological fixation of the ovaries, laparotomy must be considered.

EXTRA-UTERINE PREGNANCY.

Dr. C. A. L. REED's conclusions are (*Four. American Med. Assoc.*, Chicago, November 29, 1890):

1. The only proper treatment of ectopic gestation is that by abdominal section.
2. In cases in which rupture has not taken place the operation should be done as soon as the condition can be presumptively diagnosed.
3. If rupture has taken place, operation should follow as soon as internal hemorrhage becomes apparent.
4. When viability has been reached without rupture, the case should be allowed to proceed to full term, but only under the closest possible vigilance.
5. In all cases, the appendages from both sides should be removed, providing the condition of the patient will justify the extension of the operation.

HOLMES says, (*Physician and Surgeon*, Ann Arbor, Mich., May, 1890), that of the various methods of treatment only two are worthy of mention. They are destruction of the life of the child by electricity, and removal by abdominal section.

"If the diagnosis seems tolerably certain before the twelfth week, and before rupture seems imminent, use electricity. If rupture occur, and symptoms indicate an arrest of hemorrhages and rally from shock, wait for reaction and perform laparotomy. If symp-

toms point to continuation of the bleeding, open the abdomen and controll it in the only way possible—that is, by ligating the vessels in the broad ligaments.

If the fœtus be dead and its presence threaten danger, remove it at once.

Electrical Treatment.—While the leading lights in gynecology are of one mind in relation to the surgical treatment of this condition, a diversity of opinion arises in relation to the safety and efficiency of the electric current. BROTHERS reports 53 cases treated by electricity, with 4 deaths. Subsequent health of surviving patients was good. LUSK, SKENE, BUCKMASTER and others very ably advocate this treatment, while TAIT, BALDY and others as ably condemn it. GEO. T. ENGLEMAN says that although formerly advocating it, recent results have caused him to waver.

OVARIAN TUMORS.

SYNOPSIS OF DIAGNOSTIC POINTS.

The diagnosis of these tumors is often of the utmost difficulty. In the first place, pelvic tumors generally are simulated by pregnancy, ascites, obesity, intestinal and vesical distention, and similar conditions. When a tumor is actually present, it may arise from other sub-peritoneal tissues as well as from the ovary. And when from the ovary, it may be either malignant or benign.

Professor KØBERLE, of Strasburg, lays down the following general rules:

In subperitoneal serous cysts, there is no loss of flesh. The tumor, unilocular, presents a very manifest fluctuation; its walls are thin; its development slow, though at times rapid enough; it sometimes attains a considerable size without becoming adherent to neighboring organs; sometimes it is small and very adherent.

In cysts of the ovary, wasting is pronounced. The tumor, whether uni- or multilocular, often presents a limited fluctuation; its walls are occasionally thin, occasionally more or less thick and resistant, hard, nodulated; its development is ordinarily rapid, sometimes slow; lastly, it is adherent whenever the volume is at all considerable.

A more positive method is by *aspiration* and examining the con-

tained fluid. This diagnosis rests principally on the presence or absence of albumen, metalbumen, and paralbumen. Parovarian cysts, or those of the broad ligament, contain a very fluid liquid, generally colorless and limpid as water, sometimes quite salt, but generally not containing any albuminous material; when it does contain albumen, it is the paralbumen that is precipitated by nitric acid, but the precipitate redissolves in acetic acid.

Cysts of the Fallopian tube contain only albumen, and no paralbumen; the precipitate produced by nitric acid is increased by acetic acid.

Ovarian cysts furnish a liquid charged with albumen, metalbumen, and especially paralbumen, giving a precipitate soluble in nitric acid.

Well marked, these reactions are conclusive; but there are exceptional cases where they are but feebly present.

All doubt is removed, however, and we have to do with an ovarian cyst, when puncture gives exit to a glutinous fluid, sometimes entirely uncoagulable by heat and nitric acid, rarely limpid, containing only traces of albumen (colloid cysts), or a fatty liquid containing in suspension, mucus and epidermic detritus or hair (dermoid cysts). Lastly, examined by the microscope, the fluid of ovarian cysts contains granular globules, yellowish, 0.003 millimetres to 0.06 millimetres in diameter, the envelope being rendered more apparent by acetic or phosphoric acid.

MR. SPENCER WELLS remarks that in ascites the stomach and intestines, containing air, float on the surface of the fluid, and, therefore, the highest points of the tumor, the patient lying on her back, give out a clear sound on percussion. If, however, the fluid be contained in a cyst, the stomach and intestines are pushed aside, as the tumor rises in the abdomen, and lie in the epigastric and two lumbar regions. Hence, the highest points of an ovarian tumor emit a dull sound when percussed, and the epigastric and lumbar ones give a clear sound. By applying these general rules in any ordinary case, a few seconds will enable a surgeon to clear up all doubt.

ATLEE says mobility diminishes as size increases, there is freedom from constitutional symptoms, the emaciation is most striking about the face, neck, shoulders and arms, the expression of countenance is anxious, careworn, the features attenuated, the complexion pale. An important point in the position of the tumor in relation to the

viscera; it is usually in front, and gradually crowds them backward, upward, and to the sides. There is a dull percussion sound over the space occupied by the tumor. Fluctuation can be recognized only in the tumor. The form of the abdomen is rarely uniform.

As a general rule, according to Dr. T. M. DRYSDALE, ovarian fluids have an animal odor; they are rarely clear, usually cloudy, and frequently opaque; in color they vary from that of white of egg or clear starch, to shades of yellow, red, green, or dark chocolate, or even inky black; in consistence, they may be almost like water, or thin syrup, mucilage, oil, or molasses, or ropy, or jelly-like; but they always are sticky and viscid, and generally feel slimy. A sediment rarely fails to form after a few hours; this is viscid, and often like pus. Reaction generally alkaline. Chemically they consist of albumen, fats, extractives and salts. Notably they contain an excessive amount of solid matter, often one-tenth of the whole weight of fluid. *They never contain febrin*, unless hemorrhage has occurred into the cyst, or it has been inflamed. Microscopically they usually display free granular matter, oil globules, epithelial cells, crystals of cholesterine, etc., *but no matter what other cells may be present or absent, the cell which is almost invariably found in ovarian fluid is the granular cell.* This is generally round or may be slightly oval, delicate, transparent, contains a number of fine granules, but no nucleus. The granules are well defined. *Acetic acid makes them more distinct.* Ether renders them nearly transparent. Other cells, on the addition of the acid, increase in size, become very transparent and exhibit nuclei.

The differential diagnosis between *ovarian cysts* and *ascites*, is represented as follows by Prof. ROBERT OLSHAUSEN, (*Handbuch der Frauenkrankheiten*, edited by Billroth, part VI.):

<i>Ovarian Cysts.</i>	<i>Ascites.</i>
Of slow growth.	Rapid development; sometimes with fever; sometimes concomitant heart, liver or kidney disease.
Œdema of the lower extremities rare and late. General œdema, almost never.	Œdema of the lower extremities early; often general anasarca.
Abdomen barrel-shaped; ribs thrown outward. Antero-posterior diameter greater. Greatest periphery below the navel.	Abdomen spherical; ribs normal; the body, in lying, more broad than high; greatest periphery at the navel.

Ovarian Cysts.

Change of position does not affect the form of the trunk.

Percussion of the most elevated portion (near the navel) hollow. Change of position does not alter percussion sound.

Fluctuation limited to the region of the hollow sound.

Uterus often elevated or pushed back in the hollow of the sacrum; diminished in mobility.

Contained fluid, thickish, mucous; of almost any tint; spec. grav. 1015-1030; very rarely coagulable; contains epithelial, cylindrical cells; often cholesterin, rarely pus corpuscles.

Ascites.

Form of trunk differs when standing and when lying on the side.

In lying on the back, percussion of most elevated portion, sonorous. Change of position always brings the hollowest sound to the most elevated portion of the trunk.

Fluctuation marked, easily produced, most prominent at most elevated points.

Uterus often descends, even to prolapse; unusually movable.

Fluid thin, clear; yellowish or greenish; sometimes tinged with blood; spec. grav. 1005-1015; sometimes coagulates after standing. Contains white blood corpuscles; seldom or never cylindrical epithelium or cholesterin.

TREATMENT.

The medical treatment of tumors of the ovaries embraces:

Internal medication.

Injections into the sac.

Electrolysis.

Internal Medication.—It has been believed by some practitioners that a prolonged use of *muriate of ammonia* has led to atrophy, absorption and disappearance of certain benign ovarian tumors. Two such cases are recorded at length by Dr. E. H. W. HUNTER, in the *Trans. of the Georgia State Med. Soc.*, 1877. He gave gr. xx. of the *muriate*, four times daily. In ovarian dropsy, the free use of *chlorate of potassium* is said to have resulted in marked diminution of the contents.

PROF. E. R. PEASLEE, M. D., NEW YORK,

Believed that, in several instances, the growth of ovarian cysts had been checked by the application to the vagina, of *iodide of lead*. The ointment may be smeared on a cotton tampon, and introduced from time to time. Care must be exercised that too great irritation is not excited.

Injections into the Sac.—The substance usually employed for this purpose is *iodine*. Some surgeons use the pure tincture. Dr. BOINET, of Paris, employs :

1196. R.	Tinct. iodi,	f. $\frac{3}{4}$ iij	
	Potassii iodidi,	3j	
	Acidi tannici,	3ss	
	Aquæ destillatæ,	f. $\frac{3}{4}$ iij.	M

He injects the whole of this amount, brings it in contact with the entire surface of the sac by gentle agitation, and then withdraws it.

Prof. T. GAILLARD THOMAS recommends as the best procedure to empty the sac by the aspirator, and without withdrawing the needle, fill it with tincture of iodine, and in ten minutes draw it off. He would confine this plan of treatment only to a late period, in cysts of moderate size, with few compartments, and containing a fluid which is not very viscous.

Electrolysis.—Within the last few years, great attention has been given, especially in Germany, to the dispersion of ovarian tumors by electrolysis, and it was at one time confidently announced that this plan would supersede ovariectomy.

Further observations show that while in many instances electricity, properly applied, will reduce the tumors very materially, the effect of the agent is temporary, and it is very doubtful whether any permanent and real benefit accrues from the procedure. In Vienna, the electrolytic treatment has been carefully and repeatedly tested, and it is now wholly neglected as of no avail. (See *Am. Jour. of Obstetrics*, Oct., 1878.)

EPHRAIM CUTTER, M. D., BOSTON,

In a report to the *Amer. Med. Ass'n*, in 1879, says it is dangerous to operate on a person suffering with albuminuria. He regards it as proved that the results obtained are due to the passage of a current, and not solely to puncture. With Dr. KIMBALL, he has operated on sixty-one cases. In one case, the fibroid was extracted from the vagina fifty-three days after the application. In a similar case there was a small, nodulated mobile fibro-myoid attached at and incorporated with the fundus. The os was ulcerated, and the operation was advised to arrest the hemorrhage. A current was applied for seven minutes. Two months after, no tumor could be felt, and the os was healed. In one case, an electrode was applied per vaginam, and the

circuit was completed by a sponge electrode over the pubis, but with such alarming results that the procedure was shown not to be safe. It is best to confine the action of the current to the tumor, as it alone is in fault, and needs the whole force. This is effected by completely insulating the needle where it passes through the healthy tissues.

DR. L. DE SINETY.

The medical treatment of ovarian tumors should be directed rather to supporting the general system and relieving dyspeptic symptoms, than with the hope of dissipating the tumor. Mercury, iodide of potassium, compression, massage, thermal waters, electricity, electro-puncture, ergotin hypodermically, etc., have been employed, and occasionally diminution of the tumor or even its complete disappearance reported; but the same means employed by others have not yielded any such beneficial results.

The surgical measures are the only ones to be relied upon. These are—

1. Puncture.
2. Drainage.
3. Ovariectomy.

It should not be forgotten that occasionally a *simple puncture will bring about a complete cure of an ovarian cyst* (instances by PANAS, *Archives de Tocologie*, 1875.) Usually the puncture is associated with an iodine injection, as :

1197. R.	Aquæ destillatæ, Tincturæ iodi, Potassii iodidi,	f. ℥ v-vij f. ℥ iij ℥j.	M.
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Out of one hundred and thirty cases operated upon in this manner by Dr. BOINET, there were sixty-four recoveries. But it only succeeds in unilocular tumors where the fluid contained, is clear and limpid.

Prof. COURTY, in 1866, reported a case which he believed he succeeded in curing by inunction of iodine, general tonic measures, and especially the prolonged administration of *gold oxide*.

The *bromide of potassium* in moderately large doses has been alleged by several writers to have had the effect of reducing and dispersing the tumor.

When one considers the anatomy of most of these cysts, such claims cannot but appear groundless, as a dispersion of them by medical measures is hardly conceivable. Probably the tumors or

enlargements which diminished under such medication were not ovarian cysts at all, but belonged to the products of chronic inflammation, dropsy, etc.

The *hygienic and dietetic treatment* of such cases is of great importance. Nothing should be undertaken which will depress the physical forces, and everything should be avoided which will stimulate the irritability of the ovaries. The diet should be light, and digestion and assimilation favored by fresh air and exercise. During the menstrual period the patient should keep her bed, especially when the flow is profuse. Sexual excitement should be discountenanced, and pregnancy positively warned against.

AMENORRHEA.

SYNOPSIS OF DIAGNOSTIC POINTS.

Amenorrhœa may be primitive or acquired. In the first form menstruation has never taken place, or if it has occurred at all, the discharge has always been scanty, or has appeared at prolonged intervals, or both. In the second form menstruation has taken place regularly and healthily, and has afterwards become suppressed.

The following table represents the various forms of this affection, their causes and pathological significance:

PRIMITIVE AMENORRHEA.

Menstruation absent (emansio mensium).	No formation of decidua.	{ Uterus undeveloped or absent; Ovaries well or ill-developed or absent. { Anæmia. Chronic disease. Bad hygienic conditions. Emotional shocks. Physical shocks. Acute diseases. Change of residence. Exposure. Bathing. Plethora. (?)
Menstruation scanty.	Scanty formation of decidua.	{ Uterus small. Ovaries well or ill-developed. Uterus well developed. { Anæmia. Bad health.
Menstruation irregular and generally scanty.	Irregular and generally scanty formation of decidua.	{ Uterus usually small, but may be well-developed. { Anæmia. Bad health.

ACQUIRED OR SECONDARY AMENORRHEA.

Menstruation absent (suppression).	No decidua formed.	Uterus and ovaries well formed.	Anæmia.
			Chronic disease of lung, liver, kidney, ovaries, uterus, or gastro-intestinal canal.
			Bad hygiene.
			Shocks, physical or emotional.
			Acute diseases.
			Blood-taint.
			Exposure.
			Bathing.
			Change of residence.
			Over-involution after labor.
			Early menopause.

In place of the discharge of blood, there may be a leucorrhœa, more or less profuse.

It should never be forgotten that in not infrequent instances amenorrhœa, supervening apparently without cause, is the first sign of *phthisis*, and in all such cases should arouse the most active attention of the physician. Some writers hold that in these cases the amenorrhœa is not so much the sign as the exciting causes of the tuberculous change.

TREATMENT.

HERMAN (*Lancet*, London, Oct. 11, '90) says: "Cases are common in which menstruation is absent without producing any kind of disturbance of health; and I see no reasons for supposing that in these particular cases the suspension of the function should have a different result. The absence of menstruation is simply part of a constitutional state. There is no kind of local treatment that will establish menstruation. It is easy by treatment to make the uterus bleed; but uterine hemorrhage is not menstruation. * * * But there is no treatment from which the re-establishment of menstruation can be predicted.

Change, fresh air, exercise, food and tonics are the great therapeutic agents. Of these, *change* is the essential. Complete change, to surroundings where the other conditions may be complied with, is the great thing. The patient should be in a healthful place, with cheerful companions able to persuade her to exercise, and to tempt her appetite by the resources of cookery.

If this can be carried out, in young subjects recovery will almost always follow.

REAMY (*Journal of the Medical College of Ohio*, May, '90), in

speaking of amenorrhœa combined with anemia, so common in school girls, says: First, she must leave school and must, not even study at home. Second, she must spend several hours each day in the open air, walking or riding. In winter, she must, of course, be warmly clad, but must wear no chest-protecting pads. Standing in the open air, she must be induced to breathe deeply with the mouth closed; this should last for 15 or 20 minutes, and be repeated at least twice a day. Nothing that can be done will more rapidly improve the character of the blood. Third, she must sponge her body and extremities every morning immediately on rising from bed. The water must be of the temperature of the room, and friction must be practiced freely, with an ordinary towel. Fourth, she must drink plenty of milk and eat plenty of beefsteak. Fifth, she must take small doses of iron, in combination with some bitter tonic, three times day.

Improvement may be somewhat slow, but if this course is faithfully carried out, a perfect cure will result, and the patient can then finish her education.

RACEBOSKI, in an elaborate paper on emmenagogues (*Medical Age*, Detroit, May 25, 1891), classifies them as follows:

1. Simple general excitants, such as augmenting the heat of the body, and a slight acceleration of the circulation. This, at a time when the capillaries are already engorged with blood, will often suffice to bring about a flow. Anæmic cases are sometimes benefited by iron and arsenic, which have, however, only a general action.

2. Certain medicinal agents having a special action on the uterus, the rectum or the bladder, as savin, rue, aloes, cantharides, etc. The excitation caused by these medicines, operating at the time when the flow should, normally, appear, will suffice to rupture the full vesicle and provoke the menstrual hemorrhage.

3. Psychic agents, as contact with men, the reading of romances, sexual excitations, etc.

The author also speaks highly of strychnia as an emmenagogue, referring to its restoring tone to the muscle fibres with which the ovaries are surrounded.

LINHART (*Wiener Medizinische Presse*, Vienna, Dec. 8, 1889). finds that sodium salicylate has considerable power as an emmenagogue.

WARD (*Medical World*, Phila. Aug. '91) speaks highly of the use of *Sanguinaria Canadensis* as an emmenagogue. He begins its

administration ten days or two weeks before the expected menstruation, and gives one drachm of the tincture three times a day, and half an ounce before retiring. He finds the drug to produce slight nausea, and pains in the bones at times. He insists upon strict hygienic treatment being carried out at the same time.

JOHN WILLIAMS, M. D., LONDON.

Referring to the classification of the forms of amenorrhœa already given, this writer suggests the general line of treatment as follows (*Lancet*, May 26th, 1877):

Menstruation is and always has been absent. The great majority of cases of this class which will come under observation, will be young girls between sixteen and twenty years of age. Many of them will suffer from anæmia and disorders of the digestive organs. Such cases are instances of late or tardy evolution of the generative organs. The form and figure may be well developed, but the uterus grows slowly, and the treatment consists in waiting and adopting all means that favor its growth. There will, after all, remain a few in which the discharge will not make its appearance. In these it will be found that the uterus is small, and the best treatment is non-interference.

Menstruation is scanty or irregular. If it be due to an undeveloped condition of the uterus, and if it be accompanied by no pain, the general health being good, it requires no special treatment. General means which favor physical development, as exercise of all kinds, may be recommended. If the uterus have attained its full size, there will, in almost all cases, be found a disordered state of the general health. The most common condition is anæmia. In such cases the physician should regulate the bowels, for there is generally constipation, and give iron, iodine, salines; good diet, fresh air, and exercise in the open air, are essential. Exercises of all kinds are good—riding, walking, swimming, dancing. If the monthly molimen be present, emmenagogues may be prescribed, but they should never be administered when indications of ovarian and uterine action are present. The medicines supposed to have a direct action in bringing on the menses, are numerous, but few of them are of much or even of any value. The best are *electricity*, *aloes*, and the stimulating diuretics—nitrous ether, spirits of juniper, and oil of turpentine. Hot hip-baths for five or six nights in succession before the expected return of the molimen, are useful.

In the hands of some, guaiacum, ergot of rye, oil of savin, cantharides, have proved successful. Dr. ATTHILL recommends the warm hip-bath for eight or ten evenings in succession before the expected time.

Suppression of the menses. When the suppression has taken place suddenly during a menstrual flow, the patient should have a hot bath, go into a warm bed, and take a dose of Dover's powder. A stimulating diuretic or a diaphoretic should be prescribed at the same time. Should fever, heat in the skin, vomiting, pain in the abdomen, and symptoms of local inflammation or of general peritonitis set in, they should be treated irrespective of the suppression. If the flow is not re-established, the case becomes one of chronic suppression.

Chronic suppression. The general health should be attended to, and if menstrual molimina be present, they should be encouraged, and efforts made to establish the flow by the means already enumerated. If molimen be absent, we must limit our aid to the treatment of the general health.

PROF. R. J. GRAVES, M. D., DUBLIN.

This author observes, in his *Clinical Lectures*, that the periodicity of the function of menstruation, can still be traced, even in cases where suppression has continued for a great length of time, by means of the menstrual molimina (pains in the loins, thighs, and hypogastric region, flushing, colicky pains of the abdomen, general feeling of *malaise*,) which occur at stated intervals; in endeavoring to bring on the discharge, therefore, we must be guided as to the time the attempt should be made, by an observance of the period at which these molimina occur. For a few days before that time, our efforts to produce a determination of blood to the uterus may be judiciously employed; and if they fail, the attempt should be abandoned until a few days before the next menstrual period. Of course, however, the general constitutional treatment must be constantly persevered in, one of the chief means of bringing back this evacuation, being the restoration of health to the natural standard. But all such remedies as pediluvia, stuping of the genitals, leeches to the inside of the thighs, near the labia, aloes and other stimulative purgatives, etc., should be only used at the times spoken of. To use them at any other period, either after the molimina have disappeared, or during the intervals between them, tends, in most cases,

still further to derange nature, by determining to the uterus at an unseasonable time, when there is no natural tendency to that organ. Under such circumstances, the very same means fail and prove injurious, which, applied so as to coincide with the time of the natural effort, would have been successful.

To illustrate these principles by an example. We are consulted in the case of a young woman affected with various hysterical symptoms for several months, and during that period more than usually subject to headache, languor, loss of spirits, diminution of appetite and irregularity, and, usually, constipation of bowels; she is pale, and complains of various pains and uneasy sensations, and has not menstruated since the appearance of the symptoms. Here it is evident that the constitutional treatment must be strengthening and tonic. The practitioner will, therefore, recommend regular hours, much exercise in the open air, a nutritive diet, and afterward, cold shower-baths; he will regulate the bowels, and afterwards prescribe a course of tonic medicines, chalybeates, preparations of bark, strychnia, etc.; he will likewise inquire carefully when the last period happened, and where, and how often since that occurrence, menstrual molimina were observed. He thus ascertains when they should again recur, and contents himself with enforcing the constitutional treatment until about six days before the calculated time. Then he lays aside the other medicines, and has recourse to those means which determine to the uterus. Two leeches are applied to the inside of the thigh, near the labium, every second night, until they have been three times applied. The bleeding is encouraged by stuping. On the intermediate days the bowels must be actively moved by aloetic pills; and for three nights before and after the molimina, hot pediluvia, rendered stimulating by mustard seed, may be used. During the same time, also, frictions, with stimulating liniments, should be applied to the feet and legs every morning, and oil of turpentine or tincture of cantharides may be exhibited internally, while the necessity of more active exercise is inculcated. If these means fail, they must for the moment be laid aside, and the constitutional treatment must be again resumed, until the same number of days before the next period, when the list of remedies above spoken of must be again tried, and in few cases indeed shall we find them to fail.

PROF. T. GAILLARD THOMAS, M, D., OF NEW YORK,

In cases of rudimentary or atrophied uterus, suggests local stimula-

tion and distention. Every week or two it should be distended by a tent. In the intervals, an intra-uterine galvanic pessary should be worn. This, however, requires time. After general treatment, in cases of anæmia, etc., he uses other local stimulation by dry-cupping the cervix uteri. Electricity is of value. One pole of the battery may be placed over the lower part of the spine, and the other either passed over the hypogastrium, or brought in contact with the neck of the womb; or it may be carried within that organ by means of a wire covered with a gum catheter.

E. J. TILT, M. D., OF LONDON,

Advises a couple of aloes and myrrh pills each night, to produce moderate alvine action; the legs placed in a pail of hot water on rising, and a warm hip-bath at night; mustard to the inner parts of the thighs and breasts on alternate nights; the breasts dry-cupped, or rubbed with a stimulating liniment. On retiring, a linseed meal poultice, as hot as can be borne, to the lower part of the abdomen. These measures are to be tried for three days, and again after an interval of twenty-one days, and in the interval, a chalybeate is to be taken, and a bit of piline sprinkled with alcohol to be worn during the day over both ovarian regions. This he continues for three or four months. Occasionally, during the three days, he gives a mixture of acetate of ammonia, chloric ether, and fluid extract of ergot. When the head is much distressed, he applies six leeches to the labia, followed by a hot hip-bath, or a hot poultice to the labia.

He offers the following:

1198. R.	Oil of savin,	f. ℥j
	Spirits of nitrous ether,	f. ℥iij
	Mucilage,	f. ℥j
	Water,	ad f. ℥vj.

Shake well.—A teaspoonful every two hours, when the patient is half comatose from suppressed menstruation.

Or,

1199. R.	Tincture of ergot,	f. ℥ij	
	Syrup of saffron,	f. ℥ss	
	Comp. decoction of aloës,	f. ℥iss.	M.

Dose.—A teaspoonful three times a day.

He recommends the association of podophyllin and aloes, in pills, for the same purpose.

PROF. ROBERT BARNES, OF LONDON,

Thinks that the blood is in want of salines as well as of iron, and

that this is the first want. He gives solution of acetate of ammonia, adding a little nitrate of potassa, and a light tonic, as hops, cinchona or calumba. He employs iron in the form of the ammonio-citrate, the solution of acetate, or the dialyzed iron. Between the salines and the iron, he would give iodide of potassium in doses of five grains three times a day. He believes that the restorative power of iron, is much increased by the addition of strychnine or ergot.

PROF. J. B. FONNSAGRIVES, OF PARIS.

This learned author divides amenorrhœa, for treatment, into the following classes:

1. *Plethoric amenorrhœa*. Local and general bleeding, the resinous purgatives, and low diet, are here indicated. SIREDEV recommends in addition *bicarbonate of sodium*, gr. v. daily, two or three days before the period; or solution of the acetate of ammonia.

2. *Nervous amenorrhœa*, characterized by a condition of general nervous erethism. RACIBORSKI in such cases gives twenty to thirty drops of the solution of *acetate of ammonia*, in hot water, several times daily, for three or four days before the period, and also has recourse at times to ergot and *vaginal fumigations* with carbonic acid gas.

3. *Tuberculous and scrofulous amenorrhœa* require the general treatment of *dyscrasiæ*.

4. *Amenorrhœa by counter-fluxion*. This arises when some other organ, by reason of its congestion, checks or prevents the normal uterine molimen of the menses. In such cases the attention of the practitioner must be directed to removing the congested condition of the interfering organ.

DR. EMIL DILLENBERGER, VIENNA.

Treatment demands the removal of those errors and lesions which lie at the bottom of the malady. If the amenorrhœa consists of some anomaly of the sexual organs, congenital or acquired, and such as cannot be remedied, or in some other irremediable malady, treatment is useless. If menstruation has been already established, the physician must convince himself, by a careful examination, whether or not pregnancy is the cause of the cessation of the periods. Internally are used aloes and myrrh, as follows:

1200.	R.	Pulveris aloës,	gr. lxviiij	
		Pulveris myrrhæ,	gr. xxxiv	
		Extracti glycyrrhizæ,	q. s.	M.

For sixty pills. Two to four pills two or three times a day.

1201. R. Pulveris aloë's socotrinæ,
 Pulveris myrrhæ, aa gr. xlvijj
 Croci sativi, gr. xxxiv. M.
 Extracti glycyrrhizæ. q. s.

For ninety pills. From four to six twice a day.

Or, savin, as follows :

1202. R. Pulveris frondis sabinae,
 Sacchari, aa gr. xxxiv
 Olei menthæ piperitæ, gtt. iij. M.

Divide into six powders. One to be taken three times a day.

1203. R. Olei sabinae, gtt. vj-xij
 Sacchari, gr. lx. M.

Divide into six equal powders. Put in waxed paper. Take one powder three times daily.

1204. R. Pulveris frondis sabinae, gr. lxxvij
 Croci sativi, gr. xxiij
 Olei sabinae, gtt. viij
 Extracti gentianæ, q. s. M.

For sixty pills. From three to five pills two or three times daily.

Or, direct crocus and borax, as follows :

1205. R. Boracis venalis, gr. xxxiv
 Croci sativi, gr. xiiij
 Sacchari, gr. xxiij
 Olei menthæ piperitæ, gtt. j. M.

Divide into six powders. One powder three times a day.

Amenorrhœa is often more certain to be cured by putting an end to serious or bloody discharges from various organs, by treating for an improved condition of the blood, with good nourishment and a corresponding regimen, with iron, preparations of cinchona, cold washing, etc., than by the employment of emmenagogues without any plan.

For outward application the following are useful: Warm uterine douche; brushing the mouth of the womb with tincture of iodine; leeches to the portio vaginalis uteri, to the labia pudendi, to the inner side of the thighs, or to the perinæum; dry cuppings and mustard poultices to the inner side of the thighs; warm, stimulating foot baths, with mustard, salt, potash, or aqua regia; warm sitz-baths, or half-baths; bath at Ems, etc. In many girls, marriage is the first thing that regulates the menstruation.

DR. FRITZ, OF PARIS.

This writer gives the following directions in the *Union Médical*, No. 151, 1878. If the flow has been suppressed by the patient

catching cold, warm hip-baths, vapor-baths, and stimulating foot-baths will be found useful. The patient must be well covered with warm clothing, and take sudorific drugs and stimulants, such as ether, acetate of ammonia, or infusion of lime blossoms. Hot fomentations must be applied to the lower part of the abdomen and the genital organs, and mustard plasters to the inner surface of the thighs; cupping might be advisable instead of mustard. Stimulating injections will also be found very useful.

This treatment has to be continued for some days, and renewed when the next period is due. If the patient is plethoric, and congestions have been determined in the pelvic organs by the suppression of the period, leeches must be applied to the perinæum, the labia, or the thighs cupped, and if the patient be constipated, a purgative must be given. If the suppression be caused by some moral cause, and the woman is excitable, the nervous system must be treated with antispasmodics and sedative drugs.

HOSPITAL OF THE UNIVERSITY OF PENNA., PHILADELPHIA.

In amenorrhœa from anæmia and chlorosis, the following prescription embodies the hospital practice:

1206.	R.	Pulv. ferri sulphat.,			
		Pottassii carb. puræ,	āā	3 ij.	
		Mucil. tragacanthi,		q. s.	M.
Div. in pil. No. 48.					
To be given daily in doses gradually increasing, until three pills are taken after each meal.					

This gives the large quantity of twenty-two and a half grains of the dried sulphate of iron per diem.

To counteract the possible constipating effect of the sulphate of iron, this aperient mixture is given:

1207.	R.	Pulv. glycyrrhizæ rad.			
		Pulv. sennæ,	āā	3 ss.	
		Sulphuris sublim.,			
		Pulv. fœniculi	āā	3 ij.	
		Sacchar. purif.		3 iss.	M.
One teaspoonful in half a cupful of water at bed-time.					

Where the disease is due to torpidity of the ovaries, this prescription is used:

1208.	R.	Ex. aloës,	3 i
		Ferri sulphat. exsic.,	3 ij
		Assafœtidæ,	3 iv.

Sig.—One pill after each meal. The number to be gradually increased to two and then to three pills after each meal. If the bowels are at any time over-affected, return to the initial dose of one pill after each meal.

DR. L. DE SINETY, OF PARIS.

Little confidence can be placed on the so-called emmenagogues. Iron, when the amenorrhœa depends on chlorosis, mercury and iodide of potash, when syphilitic symptoms are present, and cod-liver oil in phthisical cases, will often bring back the flow. Where excessive adiposity is present, a diet of lean meat, green vegetables, with abstinence from fluids, bread and other farinaceous substances, will be effective. Once or twice a week a purgative of scammony or salines should be administered.

When there is a sluggishness of the utero-ovarian apparatus, the resources are a good hygiene, light gymnastics, open-air exercise, cold and hot douches, hot sitz-baths, and sinapisms to the mammae and inside of thighs.

Catheterism of the uterine cavity, and intra-uterine pessaries, advocated by some, are modes of treatment with which this author expresses little sympathy; while electrization, on the other hand, either with the faradic or direct current, he has seen produce positively beneficial results. The current should pass from within the vagina to the external abdominal wall.

PROF. COURTY, OF PARIS.

1209. R. Pulv. rutæ,
Pulv. sabinæ,
Pulv. ergotæ,
Pulv. aloës,

aa gr. $\frac{3}{4}$
gr. $\frac{1}{2}$ — $\frac{3}{4}$. M.

For one pill.

Of these, thirty are ordered, and three are taken the first day, six the second day, and nine the third day, always in three doses. They are suited for cases of idiopathic amenorrhœa, without great reaction on the economy, and when there is reason to suppose that the suppression of the menses is due either to an insufficient determination towards the genital organs, or to a difficulty of discharge due to inertia of the uterus. In order to encourage the influxion towards the genital organs, Dr. COURTY orders, before beginning the pills, foot-baths, sitz-baths, and fumigations. He also applies leeches to the labia during the three days the pills are taken. The pills generally induce colicky pains, and often a little diarrhœa.

NOTES ON REMEDIES.

Achillea Millefolium (Yarrow.) Dr. RONZIER-JOLY reports very successful use of this plant in amenorrhœa in tuberculous girls. He uses an

infusion of the flowering tops, ʒ iij. to aquæ Oj. STILLE believes that this plant possesses peculiar relations to the pelvic organs. It is especially called for where imperfect or absent menstruation depends upon a condition of atony in the reproductive organs.

Aconitum may be employed, with advantage in amenorrhœa, in the form of the extract. Dr. RINGER, of London recommends it in the sudden suspension of the menses, as from cold.

Aloes, in a small enema, containing gr. x., employed at the proper menstrual period, is said to be a very certain emmenagogue. Dr. E. J. TILT, of London, recommends its internal administration combined with podophyllin. It is frequently combined with myrrh.

Aloin. Dr. TILT gives :

1210. R.	Aloin,	gr. ij.	
	Cocoa butter,	gr. x.	M.
Make a suppository.			

Ammonii Murias, in the hands of Dr. ANSTIE, in ten-grain doses, three times a day, in cases of amenorrhœa, marked rather by general feebleness than by anæmia, has occasionally seemed to conduce directly and considerably toward the cure. But of this, as of all other emmenagogues, it is pre-eminently true that it is worth absolutely nothing if not exhibited precisely on the fit occasion.

Ammonie Aqua has been successfully employed in the form of injection into the vagina :

1211. R.	Aquæ ammoniæ,	f. ʒ ij	
	Lactis,	Oj-ij.	M.
To be injected into the vagina daily.			

Apiol is highly recommended by Dr. JARET (*Bull. Gén. de Thérap.*, August 15th, 1860,) and others since, as one of the safest and best of emmenagogues, not being even contra-indicated in incipient pregnancy. It is said to be especially adapted for cases attended with local or general nervous symptoms. A granule or "pearl" may be taken, gr. iv., four times a day.

Argenti Nitras, applied in substance lightly to the os uteri at the time of the expected appearance of the menses, has proved successful in obstinate cases.

Artemisia Vulgaris. The mugwort once enjoyed considerable reputation as an emmenagogue.

Belladonna. In plethoric amenorrhœa, belladonna is an efficacious remedy. It is quite popular on the continent, and recently Dr. F. T. PORTER, of Dublin, has reported marked success with it.

Cantharides. Dr. W. P. DEWERS placed much confidence in the internal use

of tincture of cantharides, in doses of gtt. xx., gradually increased to gtt. xxxv. or xl. Dr. T. H. TANNER, of London, combined it with bromide of potassium.

Cimicifuga has been found an effectual remedy in some cases.

Cocculus. In nervous temperaments, with colicky pains, a few drops of the tincture several times daily, before the expected flow, will often relieve.

Crocus Sativus. Saffron as a stimulant aromatic has efficacy in functional amenorrhœa. The celebrated "Pills of Rufus" are composed as follows :

1212. R.	Aloës,	gr. iiss	
	Myrrhæ,	gr. i	
	Croci,	gr. $\frac{1}{80}$	
	Syrupi absinthii,	q. s.	M.

For one pill; five to ten pills daily.

Ergot is recommended by Dr. TILT, of London (in doses of gr. v-x., in powder, two or three times a day). He usually gives it in conjunction with other remedies :

1213. R.	Tincturæ ergotæ,	℥xxx	
	Syrupi croci,	f. $\frac{3}{4}$ ss	
	Decocti aloës compositi,	f. $\frac{3}{4}$ iss.	M.

A teaspoonful three times a day.

Or,

1214. R.	Liq. ext. ergot.,	f. $\frac{3}{4}$ j	
	Prepared lard,	gr. iv	
	Cocoa butter,	q. s. ad gr. xv.	M.

Make a suppository.

Ferrum Redactum, and the other ferruginous preparations, are indispensable in the anæmia which constantly accompanies stoppage of the function.

Galbanum may frequently be combined, with benefit, with the salts of iron.

Hydrargyri Chloridum Mite is contra-indicated, if the patient be feeble, and it is capable of doing much mischief in unsuitable cases. But Drs. GRAILY HEWITT, ASHWELL, and others, have found it a decided emmenagogue. Dr. HEWITT directs that on two successive nights, at the time of the expected period, a dose be given of five grains of calomel and six grains of aloes, followed by a seidlitz powder in the morning.

Iodine frictions over the abdomen have been found to give good results.

Iodoform, internally, has been recommended.

1215. R.	Iodoformi,	āā	$\frac{3}{4}$ j	
	Ext. gentianæ,		q. s.	M.
	Pulv. gentianæ,			

Make 100 pills. Three to six daily.

Mentha Pulegium. Pennyroyal has a popular reputation as an emmenagogue.

Myrrh, in combination with iron and aloes, is a standard remedy in amenorrhœa. Dr. TILT, of London, recommends the following so-called "Elixir of Paracelsus :"

1216. R.	Tincturæ myrrhæ,	f. ℥ iv.	
	Tincturæ croci,		
	Tincturæ aloës,	āā f. ℥ iij.	M.

Dose.—℥ij–iij twice daily, in a little water.

Potassii Bromidum. The value of bromide of potash in amenorrhœa, especially that connected with nervous and hysterical phenomena, neuralgia, ovarian irritation, scanty and painful menses, has lately been strongly urged by Dr. M. ROSENTHAL, of Vienna. (*Wiener Med. Presse*, No. 46, 1878.) He repeats it in full doses for some days before the menses begin.

Pulsatilla is said by PHILLIPS to be of the greatest value in functional amenorrhœa, and that following fright or chill; gtt. j–v of the tincture three or four times a day. PINTSCHOVIVS recommends gr. j of the extract thrice daily.

Ruta Graveolens. Rue has been recognized as a direct emmenagogue since the time of Hippocrates. As it is a decided irritant of the intestinal canal, it must be given with caution. According to E. HAMELIN (*Dict. des Sciences Médicales*, 1877,) it is especially indicated where suppression is due to atony or inertia of the uterus. The powder is used by Dr. COURTIV. A better preparation is the essential oil. The following is from Dr. DUBOIS :

1217. R.	Olei rutæ,		
	Olei sabinæ,	āā	gtt. vj.
	Sacchari,		℥ vij.
	Rub together and add		
	Aquæ aurant. flor.,	f. ℥ iiss.	M.

A dessertspoonful every hour.

A rectal injection of an infusion of rue, ℥j to Oj, is occasionally serviceable.

Sabina is considered by Dr. TILT, of London, as the most reliable of a very uncertain set of remedies. He has never seen any ill effects from its use, though he has given gtt. xx. of the oil twice a day. He orders :

1218. R	Olei sabinæ,	f. ℥ j.	
	Spiritus ætheris nitrosi,	f. ℥ iij.	
	Mucilaginis,	f. ℥ j.	
	Aquæ,	f. ℥ vj.	M.

A teaspoonful every two hours, the bottle being previously shaken. A plaster containing the oil may also be worn over the ovarian region.

PEREIRA, HOME, PHILLIPS, LOCOCK, and SIR CHARLES CLARKE, all testify to its efficacy.

Sanguinaria. R. BARTHOLOW, M. D., regards *sanguinaria* as a positive emmenagogue. He uses the following :

1219. R.	Tinct. <i>sanguinariae</i> ,	f. 3ij	
	Tinct. aloës,	f. 3ss	
	Tinct. nucis vomicæ,	f. 3ij.	M.

Twenty drops two or three times a day for amenorrhœa of anæmia.

Or,

1220. R.	<i>Sanguinariae</i> ,	gr. ij	
	Ext. aloës,	gr. x	
	Ferri redacti,	ʒj.	M.

Ft. pil. No. xx.
One pill three times a day.

Senega was first recommended as an emmenagogue by Dr. HARTSHORNE, of Philadelphia. He gave a pint of a saturated decoction daily during a fortnight before the expected appearance of the discharge.

Sinapis. A hot mustard hip-bath is often useful, the patient remaining in it for an hour each time.

Sodii Biboratis. Dr. COPLAND recommends the following :

1221. R.	<i>Sodii biboratis</i> ,	3ss	
	Aloës socotrinæ,		
	Pulveris capsici,	āā	gr. xx
	Olei lavandulæ,		q. s. M.

Make eighteen pills. Take two thrice daily.

Strychnia. Small doses of the extract or alkaloid of nux vomica, combined with aloes and myrrh, are sometimes of service.

Tanacetum has a popular reputation.

Terebinthinæ Oleum. Turpentine enemata have been given with success :

1222. R.	Oil of turpentine,	f. 3ss	
	Barley water,	ʒj.	M.

For one enema, to be given once or twice a day.

Zingiber. Hot ginger tea is a popular remedy for suppression from cold.

GENERAL MEASURES.

Electricity. This agent has been found useful in various instances. In chronic suppression, Dr. P. S. HAYES, of Chicago, places one of the electrodes alternately over each ovary and the uterus, the other electrode over either sacro-iliac synchondrosis, the current being frequently reversed. (*Chicago Medical Examiner*, Jan., 1875.) Dr. JULIUS ALTHAUS considers the most effective form of applying electricity in amenorrhœa to be the induction of catelectrotonus of the

ovaries. (*Medical Times and Gazette*, March 14th, 1874.) He places the negative electrode of the constant battery, alternately to the right and to the left ovarian region, putting the anode alternately to the lumbar spine and to the os uteri, by means of an insulated sound. The action should be kept up for fifteen minutes at a time, and repeated daily about the period the menses should recur. The late Sir JAMES SIMPSON was accustomed to use, with advantage, an intra-uterine galvanic or zinc and copper pessary, in the treatment of amenorrhœa, the result of imperfect development of the uterus.

Leeches. TROUSSEAU strongly recommended leeches. His method of using them was peculiar. He placed a single one, or at most two, on the thigh or knee at the time the menses were due. As soon as the leech fell, he arrested the bleeding, so as to promote congestion of the surrounding tissue. Sometimes, he asserts, the menstrual pains begin almost as soon as the bleeding was thus checked.

Massage. This is appropriate in cases of suspended menstruation. Dr. DOUGLAS GRAHAM, of Boston, has given some illustrations of its successful employment. (*Boston Medical and Surgical Journal*, Feb., 1876.) The mode of procedure is manipulation of the whole body, with percussion of the back, resisting movements of the feet, legs and thighs, in all their natural directions; this being repeated daily.

Milk Diet. A strict skim-milk diet has been found successful by Prof. TARNIER, of Paris, in several cases of amenorrhœa in obese young women. With the disappearance of the extra fat, the menses returned.

Baths. Sitz-baths or foot-baths, using salt water or mustard water, are often sufficient where there is suppression following exposure. The mustard should be placed in a linen bag and soaked with occasional pressure in the water, until the latter receives a greenish color. The time of the bath should be fifteen to twenty minutes. ATTHILL especially commends the *cold hip-bath*. He directs the patient to sit in a bath containing cold water, so as to cover the pelvis, the legs and feet not being immersed, but kept warm by coverings of flannel, or by a pan of hot water. The temperature of the bath should be about 60°, taken at bedtime, and for a period of from five to fifteen minutes; after which the patient should be well rubbed with a coarse towel, and put to bed. Chilliness must be obviated by a hot jar to the feet, and if there is discomfort after the bath, it should not be repeated, or used for a shorter period. This is not applicable where there is anæmia, or constitutional disease.

DYSMENORRHOEA.

SYNOPSIS OF DIAGNOSTIC POINTS.

The forms and causes of dysmenorrhœa are defined by Prof. T. G. THOMAS, in accordance with the following table:

<i>Form.</i>	<i>Symptoms.</i>	<i>Causes.</i>
Neuralgia.	Pain usually sharp and fixed.	The neuralgic diathesis; plethora or chlorosis; malaria; onanism.
Dysmenorrhœa.	No expulsive pains; flow steady; no clots; no obstruction; occurs gradually; is habitual; no endometritis.	
Congestive or Inflammatory Dysmenorrhœa.	Pain severe, sudden; discharge lessens or ceases. General pyrexial signs, and inflammatory constitutional disturbance.	Exposure to cold and wet; tumors; mental disturbance, endometritis, etc.
Obstructive Dysmenorrhœa.	Pain sudden and accompanied by an expulsive effort after menstruation has commenced some hours ("uterine colic"); recurrence of these symptoms. Discoverable obstruction.	Contraction of cervix; uterine flexion; polypus or fibroid; obturator hymen.
Membranous Dysmenorrhœa.	Pains steady, becoming violent and expulsive; passage of membrane at each period; as sequelæ, endometritis and menorrhagia. Very rare.	Early abortions; diphtheritic endometritis.
Ovarian Dysmenorrhœa.	Pain, dull and sickening, usually precedes the flow several days, and lessens when it comes on. Breasts painful or tender. "Submammary pain." "Intermenstrual pain," occurring between the epochs. Ovaries often enlarged and tender. Pain habitual at each epoch; often shoots down the thigh.	Ovaritis; excessive nervous hyperæsthesia.

BARNES says a characteristic sign of ovarian congestion, is that the body of the uterus is drawn toward the affected ovary.

TREATMENT.

MULHERON (*Journal of Gynecology*, Toledo, April 1891), insists upon patients keeping to their beds while suffering from dysmenorrhœa.

His treatment is, for the pains, a hypodermic injection of morphia; in the congestive form, hot baths and douches. The curative treatment should be attempted during the intermenstrual period.

If displacement exists, this is corrected. For stenosis, Goodell's dilator is preferred, using slow divulsion, but he never employs it unless the uterus is movable. For the neuralgic form, fluid extract of viburnum prunifolium, one drachm three times a day, a week before the

expected attack; or apiol, 3 to 5 minims. For the congestive variety, somewhat larger doses of black haw, together with bromide, is recommended.

ALCINDA PINE (*Northwestern Lancet*, St. Paul Dec. 15, 1889), believes the greater number of these cases occurring in school girls to be functional in origin, and formulates the following:

Their environments should be as conducive to general health as is possible. They should be kept out of school their first menstrual year, and for a longer period if the temperament is a nervous one.

Calisthenic training, for the development of the muscles of the back and abdomen, should be encouraged. Warm clothing is considered as absolutely essential, and should there be any tendency to pain during the menstruation, the patient is to be put to bed during the entire period.

RAPID DILATATION.

In the literature of the last three or four years, we find GOODELL, TOWNSEND, DICKENSON and MORE MADDEN, are strongly advocating rapid dilatation for the relief of dysmenorrhœa depending upon flexion or obstruction, the latter inserting, after the operation, a flexible stem pessary made of spiral wire.

Slow dilatation is ordered by TALBOT and BURBANK, as being equally effective and less dangerous.

R. H. ANDREWS, PHILADELPHIA.

This author recommends (*Medical Summary*, Philada., June, 1890), three drugs for the relief of this disease: chloroform, cannabis indica, and gelsemium. The first may be dropped on a lump of sugar, or put into a little camphor-water in doses of 10 drops every two or three hours, although a single dose is sometimes sufficient. When the pain is excessive, the vitality much depressed, and neuralgic attacks frequent, cannabis indica is the proper drug to use.

Put five drops of an assayed fluid extract in a suitable vessel, and add to it from 4 to 6 ounces of water; the dose of this solution is a teaspoonful every ten minutes for the first hour, and at longer intervals until relieved.

As a rule, the pain ceases before the end of the first hour, but if there is increased activity of the circulation, it will be advisable to combine with it, 10 drops of the fluid extract of gelsemium.

MARTIN (*Medical News*, Philadelphia, May 13, 1890,) reports satisfactory results from the following treatment:

1. Relieve the inflammation of the uterus as much as possible between the menstrual periods, with prolonged hot water douches once or twice daily; applications to the interior of the uterus, two or three times a week, of equal parts of a 5 per cent. solution of carbolic acid and Churchill's tincture of iodine; and also the use of tampons saturated with glycerine, hydrastis or boroglyceride (10 to 20 per cent. solution).

2. Correct constitutional disturbances and give nerve and general tonics.

3. Divulse the cervical canal from five to seven days before the period, repeating for two or three months; thus making the canal so large that the membrane may be passed with but little expulsive force.

4. Prevent the formation, or favor disintegration, by scraping the uterus thoroughly with a dull curette in the middle of the intermenstrual period, and afterwards apply a 1 to 3000 or 1 to 4000 solution of bichloride of mercury to the interior of the uterus once in three or four days, and repeat from two to five months, as may be indicated.

E. L. H. MCGINNIS (*New York Journal of Gynecology and Obstetrics*, Jan., 1892,) says that dysmenorrhœa is the result of one of the following conditions:

1. Chlorotic or highly nervous temperament.
2. Unhealthy uterus.
3. Inflamed ovaries.

He does not regard electricity as a positive cure for all these conditions, but speaks of its use in high terms. His method of application is similar to that of APOSTOLI. After douching the vagina with an antiseptic solution, the intra-uterine electrode is introduced up to the fundus. The positive cord is attached to this electrode, and the negative cord to the clay pad which is placed on the abdomen over the region of the uterus. The current is turned on very gradually, the strength of the current not exceeding 30 milliampères, and the séance lasting from three to five minutes.

When ovaritis is the cause of the dysmenorrhœa, the treatment is begun a week before the flow is expected, and given daily for about eight minutes. The current is from a faradic battery, and is given as strong as can be borne without much pain. A flat, pliable electrode is placed over the inflamed ovary, and a similar one under the lumbar region, as the patient lies on her back. After a few applications, a ball electrode can usually be borne, (connected with the pos-

itive pole) placed against the inflamed ovary, (the negative being on the abdomen), and a current of tension used three times a week.

In the first variety of dysmenorrhœa specified, the electrical treatment is, of course, of secondary importance.

MONNI (*L'Union Medicale*, March, 1891,) recommends the following for dysmenorrhœa of chlorosis :

1223. R. Alcohol of melissa,
Tr. of saffron,
Tr. of iodine, } of each 1½ ounces.

M. Twelve drops daily before each of the two principal meals, for two months.

Every eight days, a warm bath containing three and a half ounces of chlorate of ammonium.

PROF. T. GAILLARD THOMAS, M. D., OF NEW YORK.

Pursuing the classification of the forms of dysmenorrhœa, given by this authority, he recommends the following plan of treatment :

Neuralgic Dysmenorrhœa. The skin should be kept warm and active by bathing and wearing flannel. If the rheumatic or gouty diathesis is present, colchicum, guaiac or vapor baths, are called for. Chlorosis, plethora, or malaria, if present, should receive attention. A sound should be occasionally introduced into the uterus. Parturition often cures it entirely. Of specific drugs, *apiol* is the most reliable, (one capsule night and morning). Tincture of *cannabis indica*, gtt. xxv. every fourth hour, will relieve the pain. Where a spasmodic element exists, the following is effectual :

1224. R. Extracti belladonnæ, gr. ¼
Butyri cocœæ, q. s. M.

For one vaginal suppository. Repeat every eighth hour.

Enemata of tincture of assfoetida, f. 5ij in a gill of warm water, often produce great relief in this condition.

Congestive Dysmenorrhœa. If from chill and exposure, opiates, diaphoretics and sedatives will give speedy relief; if from plethora, bleeding, cathartics and low diet are required; if from a displaced uterus, as is often the case, this must be corrected. Local inflammations must receive attention before a cure can be expected

Obstructive Dysmenorrhœa. Constrictions of the cervix require enlargement, either by dilatation or incision. Sounds, tents, and dilators, are used for the first-mentioned methods. Sea-tangle,

sponge, etc., are materials of which tents may be composed. Obstruction from flexion or version of the uterus requires a proper pessary or operation.

Membranous Dysmenorrhœa. This is relieved with difficulty. As soon as the menses begin, the patient should go to bed and apply hot-water bottles to the feet, abdomen and sacrum alternately. She should then take an enema:

1225. R.	Tinct. assafoetidæ,	f. 3 iij	
	Tinct. belladonnæ,	gtt. xx	
	Tinct. opii,	gtt. x	
	Aquæ tepidæ,	f. 3 iijss.	M.

Throw the whole into the rectum and retain. Instead of this, the following may be given by the mouth:

1226. R.	Chloralis,	āā	3 ij	
	Potassii bromidi,		gr. iss	
	Morphiæ sulphatis,		f. 3 iij.	M.
	Syrupi aurantii corticis,			

A dessertspoonful in a wine-glassful of water every four hours, while in pain.

Ovarian Dysmenorrhœa. The most efficacious remedies are the bromides of potassium and ammonium, in full doses, commenced a week before the menstrual act, and continued until its close. A rectal suppository of gr. v. iodoform gives great relief. Change of air and scene, warm sitz-baths, or warm vaginal injections, and general hygienic measures, are essential.

LAWSON TAIT, F. R. C. S., BIRMINGHAM.

Ovarian Dysmenorrhœa. In milder cases, treatment is generally successful. First of all therapeutic remedies, is *iron*, whether there are general indications for its employment or not. There can be no doubt but that many forms of this remedy exert a specific power over the sexual organs. It is best given during the intermenstrual period in small doses, liquor ferri perchloridi, gtt. j-v, well diluted, and increased suddenly to gtt. xv-xx, for a day or two previous to and during the menstrual flow; or an iron and aloes pill may be substituted for this large dose. Hot hip-baths and leeches to the perinæum at the period are useful additions, with an occasional blister on the sacrum. *Marriage* is, perhaps, the most efficient remedy, and one we ought seldom to hesitate to recommend.

The last and most powerful aid is *mechanical irritation of the uterus*. The most convenient and least troublesome is the insertion

of SIMPSON'S *galvanic pessary*. In a large number of cases this is beneficial; but its use should be confined to those which resist simpler measures. Its introduction may give rise during the first week to considerable discomfort, but this passes off if the patient keeps her bed for a few days. It should be retained for several months. The uterus rapidly enlarges under its action, and the ovaries take part in this increased activity. Mr. TAIT does not share the prejudice against this instrument which some writers have manifested.

CHARLES R. DRYSDALE, M. D., OF LONDON.

This author maintains, (*Obstetrical Journal of Great Britain*, Oct., 1875,) that there is too great a tendency to expect to find an evident physical cause for all painful menstruation. Spasm and neuralgia are quite sufficient to account for the vast majority of cases. Membranous shreds, also, are frequent causes of obstruction to the monthly flow. The rational treatment of dysmenorrhœa commencing at an early period, consists not in the use of pessaries, or of incision of the uterus, but in the use of cold baths in the morning, with short walks in the open air afterwards; in hot baths, a few days previous to the menstrual periods; and in palliative treatment of the paroxysms by means of antispasmodics at the epoch of pain. Marriage sometimes cures such cases at once; and at other times, it is of no use.

PROF. J. MATTHEWS DUNCAN, M. D., OF LONDON.

This teacher strongly advocates the treatment of dysmenorrhœa by mechanical means. He would not hesitate to employ it in virgins when the severity of the case was urgent. The treatment he refers to is that by bougies introduced into the cavity of the womb through the cervix. He states that it is unaccompanied by danger. The only evil result he has ever seen from it is a temporary perimetritis. It is a treatment the innocence of which arises from the fact that there is no cutting, and that the instrument is not left in the womb above a few minutes at a time. It is allowed to remain until the pangs of pain which it brings on have passed. In order to effect a cure you must go up considerably above a No. 9. You must go up so as to stretch and distend the internal os uteri; and this stretching or distension of the internal os may require you, in different cases, to reach different sizes. A No. 11 is quite sufficient in

many cases; in others you will go up to a 12 or 13, rarely above that. These various numbers are not all used in one day, but in successive days, or every second or third day; and generally the whole is effected in a few sittings—say from four to eight. One is not to expect that this treatment will cure every case. By this treatment, he says that most of the characteristic cases are, if not cured, at least greatly ameliorated.

PROF. F. A. ARAN, OF PARIS.

This well-known gynecologist has highly praised the local application of opium in *neuralgias of the uterine neck*, which sometimes accompany dysmenorrhœa (*Bull. de Thérapeutique*, vol. lxvii.) His method is as follows: Having introduced a speculum, thirty to fifty drops of Sydenham's laudanum are allowed to flow to the bottom of the vagina; sufficient powdered starch is then thrown in to form a magma with the laudanum; upon this is placed a moderately large pledget of cotton, and the whole is left in the vagina, to be renewed daily or every other day, as occasion requires. He reports very great relief by this simple means.

PROF. J. B. FONNSAGRIVES, OF PARIS.

For therapeutical purposes this writer (*Traité de Thérapeutique Appliquée*, 1878,) divides dysmenorrhœa as follows:

1. *Spasmodic Dysmenorrhœa*. The flow is normal in quantity and regular, but accompanied by sharp pains, and easily interrupted. The indications are, baths and anti-spasmodics, as an enema:

1227. R.	Powdered valerian, Laudanum, Warm water,	3 iij gtt. x 3 viij.	M.
For a rectal enema.			

Or the valerianate of ammonia may be used in a similar manner. Hot poultices to the lower abdomen and sedative lotions to the hypogastric regions are also useful. Of internal remedies, two especially deserve mention, the *acetate of ammonia* and *castoreum*. The former should be given in doses of a fluid drachm well diluted, several times daily for several days before the period. Castoreum is especially indicated where the pains are associated with distention of the bowels and tympanites, or when the discharge is scanty and *tenesmus uteri* present. Its power is then real and positive. It may

be given in pill, powder, or ethereal tincture, in doses of gr. v-xxx. Its failure is often owing to the impurity of the drug.

2. *Dysmenorrhœa from general causes*, as anæmia, plethora, nervous excitement, etc. As here the disturbance of the function is merely symptomatic, it should be so treated.

3. *Dysmenorrhœa through insufficiency*. When the proper amount of blood has not been lost, the woman experiences general discomfort, sense of weight at the hypogastrium, hysterical symptoms, obstinate headache, and local congestions. The indication here is to supplement the menses by a moderate bleeding from the arm (f. $\frac{3}{4}$ ij.-vj,) or by leeches.

4. *Menorrhagic dysmenorrhœa* is nearly always associated with the change of life, and will be considered under that section.

5. *Irregular Dysmenorrhœa*. The quantity is normal, but the periods of return are irregular and the function painful. This is generally found either at the beginning or the close of menstrual life, or at the outset of diathetic disease. In other cases, it is proper to solicit the molimen at regular times by emmenagogues.

DR. EMIL DILLENBERGER, VIENNA.

When there is evident hyperæmia of the womb, several leeches to the portio vaginalis uteri, or to the insides of the thighs, warm poultices, or injections of lukewarm water, are very beneficial. When the dysmenorrhœa is of nervous origin, some advantage is derived from the application of warmth, warm baths, mustard poultices, or dry cuppings applied to the loins and thighs, and internally from narcotics, especially opium.

1228. R.	Pulveris opii,	gr. j	
	Sacchari,	$\frac{3}{4}$ j	
	Olei menthæ piperitæ,	gtt. ij.	M.

Divide into six powders. Take one every two to four hours.

Or,

1229. R.	Tincturæ opii,	\mathfrak{M} xxx	
	Infusi anthemidis,	f. $\frac{3}{4}$ iv	
	Aquæ menthæ piperitæ.		
	Syrupi,	āā f. $\frac{3}{4}$ ss.	M.

One to two tablespoonfuls every one or two hours.

PROF. THEODORE JEWETT, M. D., BOWDOIN MEDICAL COLLEGE.

1230. R.	Camphoræ,	$\frac{3}{4}$ ijss	
	Extracti belladonnæ,		
	Quiniæ sulphatis,	āā $\frac{3}{4}$ ss	
	Pulveris acaciæ,	q. s.	M.

For eighty pills. One to be taken every four hours until relieved.

1231. R. Extracti scutellarie fluidi,
Decocti aloë compositi, āā f. $\frac{3}{4}$ ss. M.
A dessertspoonful every two or three hours until relieved.

Dr. C. W. FRISBIE, of East Springfield, N. Y., writes that he used the above formula in his practice many times, and, when the cases had been properly selected, with the most happy results.

DR. A. DESPRÉS, OF PARIS.

In dysmenorrhœa, warm water occasions congestion of the uterus, and the congestion is followed by a return of the menses, and consequently by a marked alleviation.

Injections of warm water act like the cataplasms and warm lotions, which are so usefully employed in inflammation of the integument.

The injections of warm water are practiced at the hospital with irrigators, of which the jet is not very strong. The water used should be of 95° to 104° Fah., and it is renewed two, four, or six times in a day. This therapeutic means is convenient, and not repugnant to the patient.

DR. LISFRANC, PARIS.

1232. R. Vini opii, gtt. x-xx
Camphoræ, gr. ii-ivss.
Decocti althææ f. $\frac{3}{4}$ ijss
Vitel. ovi, $\frac{3}{4}$ ijss. M.

For an enema, to be given nearly cold, at bed-time, to relieve the pain of menstruation. Hot fomentations on the abdomen.

1233. R. Asafœtidæ, $\frac{3}{4}$ j
Vini opii, ℥. xv
Extracti valerianæ, $\frac{3}{4}$ ss
Decocti althææ, f. $\frac{3}{4}$ ijss
Vitel. ovi, $\frac{3}{4}$ v. M.

An enema, in hysterical dysmenorrhœa.

HENRY HARTSHORNE, M. D., OF PHILADELPHIA.

Whatever be the cause of dysmenorrhœa in any case, the subject of it should always avoid being much on her feet for a day or two before her monthly time; and should go to bed when the pain begins. Cloths wrung out of hot water, or whisky and water, may be placed on the abdomen and renewed as they cool. Internally the following may be given:

1234. R. Spiritus camphoræ, f. $\frac{3}{4}$ j
Tinct. opii camphoratæ, f. $\frac{3}{4}$ ij
Tinct. zingiberis, f. $\frac{3}{4}$ ss
Tinct. lavand. compos., f. $\frac{3}{4}$ ss
Aquæ, ad f. $\frac{3}{4}$ ij. M.

Take a dessertspoonful every hour or two.

Large vaginal injections of hot water, and dilatation of the os and cervix, are other useful measures. No medicine appears to exert a prophylactic effect, unless it is iron in cases of anæmia.

PROF. N. S. DAVIS, M. D., OF CHICAGO.

Rheumatic Dysmenorrhœa. This practitioner has called attention (*American Practitioner*, October, 1877,) to a numerous class of cases of dysmenorrhœa from chronic rheumatic irritation:

First, the patient should wear constantly good warm underclothes of flannel, eat plain, easily-digested food, drink no kind of stimulating drink, and take a full, warm alkaline bath twice a week. On getting out of the bath the water should be wiped off quickly, and the whole surface briskly rubbed with dry flannel, which brings a pleasant feeling of warmth and elasticity.

Secondly, medicines should be prescribed on the same principles as we would for chronic rheumatic irritation in any other structure of the body. Whatever medicines are given, however, must be continued faithfully from two to four months, during the *interval* between the menstrual periods.

Treatment during the menstrual week, can have no effect beyond palliating the suffering of the patient temporarily. To become curative, it must be extended through the interval, for the purpose of so changing the condition of the uterine structure and sensibility as to prevent the recurrence of the pain at the next period.

In the most common class of cases, in which the pain is severe and the flow scanty, Dr. DAVIS has for many years used successfully the following formula:

1235. R.	Tinct. cimicifugæ,	f. $\frac{3}{4}$ iij	
	Tinct. stramonii,	f. $\frac{3}{4}$ ss	
	Vin. colchici rad.,	f. $\frac{3}{4}$ ss.	M.

Take one drachm at each meal-time, in water.

If, by long continuance or unusual susceptibility, the cimicifuga causes dull headache, as is sometimes the case, either the dose should be lessened, or the fluid extract of *cypripedium* be substituted in its place. In the same manner, if the colchicum should cause disturbance of the bowels, its quantity must be lessened in proportion to the other constituents.

Another prescription with which he has succeeded in many instances, especially when the pain and soreness extended to the region of the ovaries, is as follows:

1236. R.	Ammonia hydrochlor.,	$\overline{3}$ iij	
	Tinct. stramonii,	f. $\overline{3}$ ss	
	Tinct. cimicifugæ,	f. $\overline{3}$ iss	
	Syr. glycyrrhizæ,	f. $\overline{3}$ ij.	M.
Teaspoonful three times a day.			

Another useful prescription is :

1237. R.	Acidi salicyli,	$\overline{3}$ iij	
	Sodii bicarbonatis,	$\overline{3}$ ij	
	Tinct. stramonii,		
	Vini colchici radicis,	$\overline{a}\overline{a}$ f. $\overline{3}$ iv	
	Glycerinæ,	f. $\overline{3}$ j	
	Aquæ,	f. $\overline{3}$ iij	M.
Teaspoonful four times a day, in water.			

In connection with their medical treatment, Dr. DAVIS instructs his patients to place themselves in the "knee and chest" position for a few minutes three times a day. The hips are high, the knees and chest low, thus throwing the uterus by the force of gravity into its natural position. Any form of pessary only adds to the sufferings of these patients.

DR. JULIAN S. WOODRUFF, OF SOUTH CAROLINA.

To meet the severe pain which occurs in some of these cases of dysmenorrhœa, this writer states, when *morphine* and *atropine* are combined in solution and injected under the skin for the relief of the suffering, their instantaneous effects are truly wonderful and charming. An injection of this combination subcutaneously, has, in *three minutes*, extinguished all pain, the patient straightening out and laughing and talking.

DR. HENRY E. WOODBURY, OF WASHINGTON.

The treatment of this practitioner, (*Va. Med. Monthly*, Sept., 1878,) is to introduce a very small tent of elm bark into the cervix about a week before the menstrual flow commences. After introducing the tent, a plug of cotton, to which a cord is attached, is passed through the speculum to keep the tent *in situ*. The plug is then saturated with carbolic acid and olive oil, or glycerine, in the proportion of 1 to 7. By means of the cords attached to the tent and plug, the patient removes them next morning, and uses an enema of water and castile soap. In an obstinate case, a tent is used every day up to the time at which the flow should commence, unless it is established sooner, substituting larger and larger ones as the cervical cavity becomes dilated. As soon as the tent, on removal, is

found to be freely stained with blood, its use is suspended until a week before the next period.

The remedies administered internally are concentrated tincture of *helonias*, fluid extract of *ergot*, tincture of *gelsemium*; or syrup of the iodide of iron. The patient commences to take one of these three weeks before the regular date of her flow, and continues it till this is fully established. She then suspends it for a week or ten days, after which she resumes it. Sometimes better results are obtained by using two of the above-mentioned remedies alternately, as the *helonias* and the iron, or the *ergot* and iron. A gentle current of electricity is passed through the uterus once a day for two or three days before the period. This treatment has been successfully employed in cases of dysmenorrhœa due to subacute inflammation or displacement, resulting in the constriction or occlusion of the cervix.

DR. JOHN WILLIAMS, OF ENGLAND.

Membranous Dysmennorrhœa. This writer, (*Obstetrical Transactions*, 1877,) is of opinion that the inflammation of the internal surface of the uterus, often found in these cases, is the result, (not the cause,) of the membranes, but is the result of the membranous dysmenorrhœa. He does not believe they are the results of abortion, as they frequently occur in virgins. The source of mischief must be looked for in the walls of the uterus itself. The membrane is the decidua ordinarily shed as *debris* at menstruation. Dr. WILLIAMS thinks there is something wrong in the uterus from puberty; in fact, imperfect evolution. As regards treatment, everything should be done to favor the physical development of the young girl. Once the condition is established, the only means whereby a cure is likely to be effected is *electricity*, either in the form of the continuous current, or by a galvanic stem.

DR. L. DE SINETY, OF PARIS.

This author believes that the so-called *congestive dysmenorrhœa* is merely an exacerbation of chronic metritis at the menstrual period; and that the so-called *nervous dysmenorrhœa* is a neuralgia with a uterine point, becoming more sensitive at the catamenia. In the latter cases, the sensitive point persists in the intermenstrual period, and may be found at the juncture of the uterine neck and body. True dysmenorrhœa is nearly always symptomatic of an affection of

the uterus or its annexes, and generally depends on a mechanical obstacle. A small polyp, a blood-clot, or a shred of mucus, may cause painful and obstinate dysmenorrhœa.

The treatment, therefore, should be mainly mechanical. Progressive dilatation, by introducing a bougie daily into the cervical cavity and leaving it a quarter of an hour, gives excellent results. If this fails, we must have recourse to general measures, as tonics, hydrotherapy and electricity. Local and general narcotics may be called for to relieve pain. The introduction of chloroform vapor into the vagina is an efficient anodyne. The following rectal injection, administered after having emptied the rectum, and retained as long as practicable, is an efficient calmant:

1238. R.	Tincturæ opii,	gtt. x	
	Camphoræ pulvis,	gr. xv	
	Vitelli ovi,	j	
	Aquæ frigidæ,	℥j.	M.
For an injection.			

In *membranous dysmenorrhœa* the local treatment is essentially the same. The indications for general treatment must be based on the diathesis. Thus, iodide of potash or cod-liver oil, useful in some cases, must in others be replaced by arsenic or the alkalies. *Electricity* has given excellent results in some cases of this nature after every other resource has been exhausted. When there is decided endometritis, cauterization of the internal surface of the uterus, preferably with the silver nitrate, is valuable; but where the pathological process consists in simple hypertrophy or an exaggerated desquamation of the normal mucous coat, such a proceeding would be useless, if not injurious. Hence, a careful microscopic study of the expelled product should precede any such operation.

NOTES ON REMEDIES.

Ammoniæ Acetatis Liquor. In painful menstruation, f. 5j doses of this preparation of ammonia, given every hour when the pains come on, will often be found to lessen or wholly dissipate them. BARNES recommends:

1239. R.	Spiritus ætheris comp.,	f. 3ss	
	Liq. ammon. acetat.,	gtt. xv.	M.
For one dose several times daily.			

Ammoniæ Murias. The following is highly recommended by Dr. O. WARD, of Tennessee, in the painful dysmenorrhœa of the climacteric period.

1240. R. Ammoniz muriatis, 3ij
 Extracti glycyrrhizæ, 3ss
 Aquæ, f. 3vj. M.

A dessertspoonful three times a day.

Amyl Nitrite has been found of great benefit in spasmodic dysmenorrhœa by Dr. MARY PUTNAM JACOBI, especially when supported by belladonna, commenced previous to the beginning of menstruation. (*New York Medical Record*, Jan. 2d, 1875.) Or it may be given in one-drop doses in peppermint water every half hour. (SELL.)

Apiol, in the hands of Dr. TILT, of London, acts like a charm when given in doses of four grains, so soon as the pains of dysmenorrhœa begin. It is also of decided efficiency in *fetid menstruation*. It is of little use, however, when the dysmenorrhœa depends upon disease of the uterus.

Arseniosum acidum, in dysmenorrhœa associated with anæmia, is often advantageous, as :

1241. R. Tincturæ ferri chlor., 3x
 Liquor. potassæ arsenitis, 3ij. M.

Sig.—Twelve drops after each meal, through a glass tube, in about one-third glass of water.

Belladonna. In neuralgic dysmennorrhœa, Dr. ANSTIE, of London, (*British Medical Journal*, August 22d, 1868,) recommends the extract, as a palliative, in doses of gr. $\frac{1}{6}$. He obtained still better results from the hypodermic injection of the sulphate of atropia, in doses of gr. $\frac{1}{10}$ — $\frac{1}{8}$, twice a day, and continued for several weeks, at once reducing the quantity when marked dryness of the throat appeared. In constitutions very intolerant of belladonna in any form, the acetate of morphia may be advantageously substituted for the atropia. A belladonna plaster to the sacrum is often of benefit; so also is a suppository of extract of belladonna.

Brominium acts efficiently, according to BARNES, in ovarian dysmenorrhœa.

Camphor. Dr. DEWES regards camphor as a very certain and uniform palliative, in dose of gr. x, every one or two hours, until relief be obtained. Or the following injection may be given :

R. 1242. Camphoræ, 3ss-j
 Tincturæ opii, f. 3j
 Mucilaginis, q. s. M.

For an enema.

Camphor liniment, or ointment, well rubbed into the loins, also affords relief.

Cannabis Indica is sometimes a useful remedy.

Cimicifuga. The eclectic practitioners speak of this as a most efficient rem-

edy in dysmenorrhœa, and temporary suppression from cold, or where there is a rheumatic diathesis. PHILLIPS endorses this statement from his own experience. (*Mat. Med.*, 1879.)

Colchicum is useful in dysmenorrhœa connected with a tendency to gout or rheumatism. It should be given with blue pill every other night; flannel at the same time should be worn, and exposure to cold avoided.

Cocculus Indicus. In thin and nervous females, where the discharge is scanty, and preceded by paroxysmal griping pains, Dr. C. D. PHILLIPS, (*Mat. Med. and Ther.*, 1879) states that the administration of cocculus, commenced a few days before the period, will frequently ward off the pains and render the discharge natural. The dose is ℥ij-x of a tincture 1-8.

Codeia, gr. $\frac{1}{4}$, highly commended by ARAN, often agrees where opiates do not.

Crocus Sativus. Saffron is much employed by French practitioners in dysmenorrhœa, both as infusion and tincture, and also locally. The following "cataplasme antispasmodique" is highly recommended in painful cases:

1243. R.	Croci contusi,		3ij	
	Pulv. camphoræ,			
	Opii pulveris,	āā	3j	
	Lini,		$\frac{3}{4}$ vij	
	Aquæ ferv.,		q. s.	M.

Mix the saffron and opium with a little water, and then stir this and the camphor into the poultice and lay it warm upon the painful uterus. It is especially grateful in "uterine colic," or "uterine rheumatism."

Ergota is often of excellent service, especially in the *congestive* form; ʒ ss. of the fluid extract every half hour may be given.

Ferri Chloridi Tinctura and *Ferri Vinum* are both excellent preparations in ovarian atonic dysmenorrhœa. Sir CHARLES LOCOCK recommends the following formula:

1244. R.	Vini ferri,			
	Spiritus ætheris compositi,	āā	f. ʒj	
	Misturæ camphoræ,		f. ʒvj	M.

Take one-fourth part every six hours.

Gossypium. Dr. L. ALEXANDER, of Pennsylvania, has found much benefit in the following:

1245. R.	Extracti gossypii fluidi,		f. ʒij	
	Extracti ergotæ fluidi,			
	Tinct. hellebori nigri,	āā	f. ʒj.	M.

Teaspoonful every three hours, commencing two or three days before the expected attack.

Guaiaicum is often productive of the greatest benefit. The *tinctura guaiacici ammoniata* is especially serviceable. In ovarian and rheumatic forms,

it deserves to be called a specific. In chronic cases, it should be accompanied by the iodide of potassium.

Oleum Terebinthinæ, in doses of gtt. xx, thrice daily, with warm baths, is recommended in membranous dysmenorrhœa, by TROUSSEAU.

Opium. Opiates are often best exhibited in the form of enemata. Dr. E. J. TILT, of London, recommends a hot linseed-meal poultice, sprinkled with laudanum, to be applied to the hypogastrium. A single hypodermic injection of morphia, when the pain is habitually severe, will often be sufficient at each menstrual period.

Potassii Bromidum. This sedative is especially valuable in neuralgic, ovarian and membranous dysmenorrhœa. It should be given in large doses, prior to the commencement of the period.

Potassii Nitras has been found highly serviceable, in doses of gr. xv-xx, well diluted with barley water.

Pulsatilla, in tincture or extract, has been well spoken of, especially for the ovarian forms. Dose, gtt. iii-x of the fresh tincture.

Sinapis. Dr. ASHWELL recommends the mustard hip-bath, to be repeated three or four times a day, the patient remaining in it for from thirty to sixty minutes, or even, if the pain be very severe, until faintness is induced.

Sodii Biboras is of advantage combined with extract of belladonna.

Stramonium is said to be of marked benefit in the severe form of the disease.

Taraxacum. A half-teaspoonful of the extract in a little warm milk every night proves useful, by keeping up a healthy action of the liver and skin.

Veratria. Mild veratria ointment, rubbed over the hypogastric region twice a day, greatly relieves the pain.

Viburnum Prunifolium affords often great relief if taken for a few days before the menses appear. Dr. E. W. JENKS, (*Trans. of the Amer. Gyn. Soc.*, 1876,) states that in all forms of dysmenorrhœa attended with profuse menstruation, it is of much value, but where the flow is scanty, it does not prove beneficial. It is not sufficiently sedative, if given alone, freely, to relieve the sufferings of spasmodic or neuralgic dysmenorrhœa; but it is a valuable adjunct to sedative and antispasmodic remedies. The dose is f.ʒss.-j. of the fluid extract, three or four times a day.

MECHANICAL REMEDIES.

Galvanism. Dr. WM. B. NEFTL, (*New Medical Record*, October 6th, 1877) gives notes of the cure of two cases of aggravated dysmenorrhœa of long standing, which had been treated thoroughly but unsuccessfully, by some leading gynecologists, but which readily yielded to treatment

by the galvanic current. He believes that dysmenorrhœa is essentially of nervous origin, (a visceral neuralgia), though it is frequently accompanied by structural or mechanical derangements of the womb; and that these derangements are frequently the consequences of the nervous affection rather than the cause thereof.

Rapid Dilatation of the canal of the neck of the uterus in painful menstruation resulting from a narrow and restricted condition of the uterine canal, has been very successfully applied by Dr. ELLWOOD WILSON, of Philadelphia, (*American Gynecological Transactions*, (1887). This he accomplishes by means of an instrument designed for the purpose.

MENORRHAGIA AND METRORRHAGIA.

SYNOPSIS OF DIAGNOSTIC POINTS.

By *menorrhagia* is meant an excessive flow of blood at the menstrual period; by *metrorrhagia*, a flow of blood between the menstrual epochs.

Neither of these forms of trouble can be called a disease, as they are solely symptoms of several kinds of uterine affection. In order to diagnose the cause and thus obtain the indications for treatment, a careful examination becomes necessary. In most instances, it is the result of general debility, as from protracted nursing. Locally, it may be caused by the presence of tumors, as polypi, etc., affections of the os and cervix, congestion of the womb or ovaries, subinvolution of the womb, or inversion of that organ.

Debility as a cause is recognized by the usual symptoms, and the accompanying predisposing circumstances, as lactation, anxiety, exhausting labor, etc.

Polypi, when low down, are easily recognized by the finger, though the speculum may be used to confirm the diagnosis. In these cases there is leucorrhœa, more or less bloody, and at intervals, discharges of pure blood, without relation to the period of menstruation. When a polypus is not found pendent in the vagina, the presence of these growths may be suspected above, as in the canal of the neck, or even within the uterus itself, and attached to the fundus. The absence of other causes of the hemorrhage, would demand dilatation of the organ if necessary, and a careful search for these excrescences.

Subinvolution only occurs in women who have been pregnant. Here, the womb, after delivery has been accomplished, fails to return to its proper condition. The diagnosis is readily made by examination. The uterus is much larger than natural, the os soft and patulous; there are pains in the back, irritability of the bladder, frequent micturition, with tenesmic efforts, and generally very profuse leucorrhœa. These may end in erosion of the os and cervix, and added to them, we may have congestion of the lips of the womb.

Again, hemorrhage may be due to the presence of a portion of the placenta, which is frequently the case after an abortion. This might be suspected from the history of the case, and the diagnosis fully made by an exploration with the sound, when the foreign body is detected. In such cases there is generally a certain amount of odor, as of a decaying body, in the cavity.

In the unmarried, a spongy state of the cervix is generally a cause; this is shown by eversion of the lips, and granulations on the surface.

Malignant disease as a cause is detected by the general history: there has been more or less pain, often lancinating, in the lower part of the abdomen, the back, around the hips, and extending down the thighs, which frequently seems to be much relieved after profuse hemorrhage has occurred. This hemorrhage would occur from a slight exertion, or after coitus. Examination shows in advanced cases fixation of the uterus, hardness and irregularity of the parts. In early cases, these symptoms all exist, but to a less extent.

TREATMENT.

GOELET, (*N. Y. Medical Record*, March 28, 1891,) regards these conditions rather as symptoms than as diseases in themselves. However, they are symptoms requiring special measures for their relief, and fortunately what alleviates these conditions, usually tends to cure the disease.

The author strongly recommends electricity for the prompt cure of these conditions.

When associated with a peri-uterine inflammation, he proceeds cautiously, beginning with 30 to 40 milliampères. He takes advantage of the peculiar hæmostatic action of the positive pole, and to produce permanent results, decided caustic action is obtained. There are two methods of application, viz., either with the platinum sound to the whole length of the canal, or by sectional cauterization.

In order to make the cure a complete one, the whole surface of the endometrium must be cauterized. Applications of electricity may be made every other day. Where fungous endometritis exists, thorough curetting should precede the electricity. This is also essential where the bleeding follows abortion.

The treatment may be carried on at the office, and does not necessitate confinement to bed.

CZEMPIN, (*Centralblatt für Gynäkologie*, Nov. 7, 1891,) states that since the introduction of *hydrastis canadensis* from America in 1883, the drug has been largely used in uterine hemorrhage with very gratifying results.

The author believes that the drug is especially valuable in cases where a healthy mucous membrane, through the functional disorders of the ovaries, or through a pathological condition of the adnexa, is put in a congestive state, and causes menorrhagia or metrorrhagia; also in those cases when a chronic catarrhal endometritis makes a tendency to a typical bleeding. In 75 per cent. of the author's cases, menorrhagia was corrected by the use of this drug. According to some authorities, the best form for administration is the hydrochlorate of the artificial alkaloid, *hydrastinine*. This drug has all the virtues and none of the bad effects of the crude drug. The daily dose is about three grains in divided doses. It can be given by the mouth or by hypodermic injection of a 10 per cent. solution.

Hydrastinine hydrochlorate, which is an artificial alkaloid prepared from *hydrastis canadensis*, is exciting a great deal of favorable comment, all over the medical world, as a remedy for the alleviation of uterine hemorrhage. It is especially efficacious in metrorrhagia, menorrhagia, congestive dysmenorrhœa and mild forms of endometritis. The bleeding usually stops in from twenty-four to thirty-six hours. The daily dose is given as from one-half to one grain administered subcutaneously in the form of a five or ten per cent. solution. Larger doses do not appear to produce untoward symptoms. A quarter of a grain, in capsule, may be given three times a day.

A careful chemical and physiological study of *hydrastis* has been made by FALK, (*Therapeutische Monatshefte*, Berlin, Jan., 1891), who finds that this drug has a decided effect upon almost all uterine hemorrhages. He finds that *hydrastinine* possesses all the beneficial, with the least of the poisonous properties of the drug.

He has had great success with its use in congestive dysmenorrhœa, bleeding from the virgin uterus, essential bleeding, hemorrhage from

diseased conditions of the uterine tissue, (endometritis, metritis), from parametritis, pyosalpinx, etc., and in myomata. He found the remedy most efficacious in cases of hyperplastic endometritis, congestive dysmenorrhœa, and virgin uterus. The hemorrhage from myomata may be lessened by the drug. Bleeding from severe neuroses does not respond well to the drug. He generally employed a ten per cent. watery solution of the drug, which does not readily spoil, and injects from 7 to 15 drops ($\frac{1}{4}$ to $1\frac{1}{2}$ grains) of hydrastinine. Five to six days before menstruation, daily injections of $\frac{1}{4}$ of a grain are made; during the bleeding, daily injections of $1\frac{1}{2}$ grains. In myomata, the smaller amount ($\frac{1}{4}$ grain) is injected daily. After a large experience in which over 500 injections were given, the author has seen no inflammatory reaction follow the procedure.

WILLIAM GOODELL, OF PHILADA.

This author, (*Medical Mirror*, St. Louis, Nov., 1890,) after curetting or for uterine hemorrhage at other times, speaks confidently of the value of the following:

1246. R.	Extracti ergotæ, fld., Ammonii chloridi, Sodii bromidi,	m. x gr. x gr. v.
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M, et signa.

For one dose, to be taken in half a tumbler of water; may repeat every two hours.

WELCH recommends the essential oil of true cinnamon, given in the form of a tincture, as having a marked hæmostatic and aphrodisiac effect.

BARTON COOK HIRST, PHILADA.

HIRST, (*University Medical Magazine*, March, 1890,) speaks very highly of the value of tannic acid applied directly to the endometrium, in the form of powder, for the control of hemorrhage associated with pelvic inflammation and congestion. His mode of application is to carry a small intra-uterine forceps holding a piece of wool charged with the powder, up to the fundus. Ergot, by the mouth, should be employed at the same time, and tampons of wool soaked with glycerole of tannin.

HALE, (*Archives of Gynecology*, New York, May, 1890,) uses strophanthus in those cases which have been debilitated by loss of blood from profuse menstruation. He uses five drops of the tincture (1 in 20) every two hours, or $\frac{1}{4}$ to $\frac{1}{2}$ grain of the powdered drug.

INTRA-UTERINE INJECTION, ETC.

TERRILLON, (*Journal de Medecine de Paris*, Dec. 28, 1890,) in a very excellent article on the subject, sums up the treatment as follows:

"The most common and most satisfactory plan of treatment is intra-uterine injections of hot water. If this does not control the hemorrhage, tampons of aseptic absorbent cotton or iodoform gauze should be used.

Externally, ice should be applied to the abdomen or vulva; sinapisms and ligatures to the extremities; internally opiates or ergot."

JORISSENA, (*Montreal Medical Journal*, Aug., 1891,) disapproved of the copious drinking of water in cases of flooding. He quenches the thirst usually present during this time, by giving slices of sugared lemon or acidulated drops. He keeps his patient in the recumbent position with the arms raised, and gives occasional inhalations of ammonia.

PROF. ROBERT BARNES, OF LONDON,

Says in all cases of hemorrhage from the uterus, obtain and maintain a patulous condition of the cervical canal. This, of itself, often arrests the bleeding. Remove everything in the shape of a foreign body, as clots, retained ova, membranes, or placenta. To do this one or two fingers may be passed in to break them up. Hæmostatics may be introduced by means of a swab of cotton wool, twisted on a roughened probe; or where, by reason of the narrowness of the canal, this is impracticable, injections or solid styptics may be used. The best way is by inserting small bits of sponge in a tube made like the uterine ointment positor, and saturating this with the styptic. The tube is then passed into the uterus, and pressure of the piston squeezes out the fluid, drop by drop, upon the bleeding surface. This failing, the styptic must be injected boldly.

In *passive hemorrhage*, the general vascular tension, the increased action of the heart, and the determination of blood to the pelvic organs, must be moderated. The most useful agents here are digitalis, aconite, bromide of ammonium or potassium, sometimes opium, ipecacuanha, chloral, salines, as acetate of ammonia, nitrate of potassa. Cold is often useful. Ice in the vagina or cold water injections should always be tried early.

Position is important; keep the pelvis above the level of the body.

Saline purgatives especially operate with advantage. Internally,

the most useful are turpentine in capsules, ergot in fluid extract or powder, or ergotine, tincture of hamamelis in five or ten-drop doses every three or four hours, quinia, strychnia, sulphuric or phosphoric acid, tannic or gallic acid, acetate of lead, the vinca major, Indian hemp, ipecacuanha. All failing, styptics locally must be used. The after-treatment does not at first require iron; this only adds fuel to the fire; the system requires, first, salines, these serve better to replenish the exhausted circulating fluid. They subdue vascular excitement, allay fever, calm nervous irritability, improve the secretions, and prepare the way for iron and other tonics. The best form of saline is the freshly prepared acetate of ammonia; to this may be added a sedative, as Battley's solution, and sometimes digitalis or aconite. Later, hamamelis, ergot, quinine, mineral acids, and a decoction of bark, and later still, iron. The best forms are the citrate, acetate or chloroxide in an effervescent form, or the dialyzed iron, at first in small doses to feel the way. Sleep is of signal service, opium with the saline, or as the compound opium pill in five-grain doses, or as pulv. ipecac. comp., ten grains. If not well borne, we have a valuable resource in chloral, in scruple doses.

PROF. T. GAILLARD THOMAS, NEW YORK.

This author says that in cases of menorrhagia, the patient should be kept perfectly quiet upon her back; cloths wrung out of cold water should be laid over the uterus, vulva and thighs; cold acidulated drinks should be given freely; and the injection of all warm fluids strictly interdicted. In addition, the apartment should be kept cool, the nervous system quieted by opium or an appropriate substitute, and all conversation prohibited. In mild cases this may suffice, but in severe ones it will not. Then the speculum should be introduced, a sponge-tent passed into the cervix, and the vagina filled with a tampon. This will rarely fail. But in certain cases, as, for instance, those of cancer of the neck, the tent will not be admissible. Under these circumstances, a soft sponge or wad of cotton should be saturated with a solution of persulphate of iron, laid upon the cervix, and the tampon placed against it; or a small linen bag may be filled with powdered alum, placed in contact with the cervix, and held in place by a tampon; or two drachms of tannin may be left free against the part. To these means, almost all cases will temporarily yield, more especially if the use of the tent is admissible.

Where the menorrhagia is due to a fungous degeneration of the

intra-uterine membrane, the *curette* is a most valuable resource; or the lining membrane of the uterus may be modified by energetic agents, as nitric acid, tincture of iodine, nitrate of silver, etc.

In very obstinate cases, change of climate will often prove of decided benefit.

PROF. ROBERTS BARTHOLOW, M. D., PHILADELPHIA.

When menorrhagia is the result of impoverished state of the blood, iron is the most appropriate medicament. It may be combined with arsenic.

Gallic acid is very effective, as in the following formula:

1247. R.	Acidi gallici,	3 ss	
	Acid. sulphur. dil.,	f. 3 j	
	Tinct. opii deod.,	f. 3 j	
	Infus. rosæ comp.,	f. 3 iv.	M.

A tablespoonful every four hours, or oftener.

When there is a large spongy uterus, ergot is indicated. When caused by ovarian excitement, bromide of potassium will promptly relieve.

Ipecacuanha possesses very valuable anti-hemorrhagic powers; it should be frequently repeated.

1248. R.	Ext. ipecac. fluidi,	f. 3 ij	
	Ext. ergotæ fluidi,	f. 3 iv	
	Ext digitalis fluidi,	f. 3 ij.	M.

Thirty minims to a teaspoonful at a dose, as required.

In debilitated and relaxed subjects, menorrhagia may be relieved by determining an afflux of blood to the uterine system. Iron and aloes may be here associated. But the latter would be contra-indicated where there already existed congestion of the pelvic viscera.

EDWARD JOHN TILT, M. D., LONDON.

This writer lays much stress upon the importance, in severe cases, of placing the head on a level with the body. Sedatives are always beneficial. The bromide of potassium or of ammonium has been known to check the tendency to menorrhagia.

In many cases damaging blood loss may be checked by the exhibition of full doses of the liquid extract of ergot and the tincture of digitalis, f. 3 ss. three times a day, as:

1249. R.	Tincturæ digitalis,	āā	f. 3 iij	
	Extracti ergotæ fluidi,		ad f. 3 vj.	M.
	Aquæ destillatæ,			

The sixth part to be taken three times a day for three days.

While giving these remedies, a two-grain opium suppository should be passed into the rectum once a day, even if there be no pelvic pain, for opium has often helped to staunch blood-flow. In any case, it is well to commence with small doses of ergot and digitalis a few days before the menstrual period is due.

PROF. GRAILY HEWITT, M. D., LONDON.

The treatment must of course in all cases have reference to the exciting cause of the profuse flow. Flexion or congestion of the uterus is frequently present. It must receive attention.

The external employment of *baths*, is of the greatest service, especially cold hip-baths and sponge-baths. Cold to the spine, by means of ice-bags, has proved of service. Injection of cold or iced water into the rectum is a valuable means of arresting the flow of blood in bad cases.

Dr. HEWITT believes that styptics taken internally are frequently found very serviceable; of them, he considers the most efficient to be *matico* in combination with tincture of iron, or the latter alone in large doses, \mathfrak{m} xxx–xl. Opium has been highly extolled, but does not appear to be adapted to chronic cases.

Where the discharge is exhausting, stimulants and nourishment should be freely administered in small quantities at frequent intervals.

PROF. WILLIAM H. BYFORD, M. D., OF CHICAGO.

This practitioner, in the *Transactions of the International Medical Congress*, 1876, discusses in considerable detail the treatment of metrorrhagia.

In the palliative treatment, isolation, quietude, and recumbency, are very important cautions to be enjoined. Plain food, cool clothing, and general hygienic rules, are indispensable. In regard to drugs, he has derived considerable advantage from astringents proper. The most generally applicable agent is *ergot*; but it will usually fail when the flow is venous, as in retroversion, pelvic infarction, tumors, etc. When there is much pain in the pelvis, and a dry state of the skin, opium and ipecacuanha are very serviceable. When vascular and nervous excitement is prominent, lobelia, gelsemium, digitalis, aconite, and veratrum viride, are all of use.

These measures failing, we must resort to either mechanical or chemical means. The former is represented by the tampon; the

latter by powerful hemostatics. They may be all advantageously combined, as in the plan proposed by Dr. MARION SIMS. His hemostatic is :

1250. R. Liquoris ferri subsulphatis, f. $\frac{3}{4}$ ss
Aque, f. $\frac{3}{4}$ j. M.

The finest cotton wool is saturated with this, and then submitted to moderate pressure and dried for use. Its application is made by wrapping a sufficient quantity around a long, small piece of whale-bone, and introducing it into the cavity of the uterus, when the cotton is detached and left there. If the hemorrhage is moderate, one such piece will suffice; if severe, it will be necessary to stuff the uterine cavity full. Strong thread can be attached to the cotton to withdraw it when necessary. From twelve to twenty-four hours is as long as it should remain.

In the intermenstrual period, curative measures should be resorted to, as alteratives, tonics and derivatives. *Muriate of ammonia* will be found especially valuable. When debility is present, among the very best remedies is :

1251. R. Hydrargyri chloridi corrosivi, gr. $\frac{1}{10}$ - $\frac{1}{12}$
Tinct. cinchonæ composita, f. $\frac{3}{4}$ j. M.
This amount thrice daily.

Iodine, iodide of potassium, and iodide of iron, are also efficient. A beneficial derivative measure is dry cups over the sacrum often repeated. The cups should be large, and allowed to remain for an hour or more.

M. PANAS, M. D., OF PARIS.

Among the various manipulative measures used in severe metrorrhagia, preference is given by this writer to plugging the cavity of the neck of the womb, which has several advantages over plugging the vagina in such cases. It stops the blood more effectually, the patients bear it better, and there is less chance of putrid absorption. The plan adopted by M. PANAS consists of introducing into the cavity of the uterine neck a pledget of cotton wool, rolled up to about the thickness of a goose-quill, and steeped in a solution of the perchloride of iron of the French *Codex*, to which is added one part of water, to prevent its caustic effects.

This being done, he introduces a ball of cotton wool and places it in the posterior *cul-de-sac* of the vagina, where it not only forms a

support to the uterine plug, but it absorbs any liquid that may escape through it, and thus protects part of the vagina (which is covered with the peritoneum) from the corroding effects of the perchloride of iron and the acrid discharges from the womb.

DR. RUDOLF TAUSZKY, OF NEW YORK.

The treatment adopted by this physician is thus briefly set forth in the *Amer. Jour. of the Med. Sciences*, January, 1881:

In the treatment of menorrhagia, metrorrhagia, or chronic pelvic congestions and hyperæmic conditions, *rest*, with pelvis elevated, is of the highest importance. Hot water injections and scarifications of the cervix and endometrium he has found beneficial. *Salicylate of soda*, *quinia*, *digitalis* in large doses, and *opium*—for the relief of pain and where a nerve sedative is indicated—are invaluable means of arresting uterine hemorrhages. *Ergotin* in large doses, given before, during, and after menstruation, every hour until the hemorrhage, if profuse, ceases, is one of our most valuable aids in arresting it. The use of intra-vaginal balls of the astringents, alum, tannin, and tincture of iron, preferably four grains of alum with a few drops of iron and glycerine, introduced every hour if the hemorrhage is alarming, or still better, the careful intra-uterine application down to the fundus, of tannin and glycerine upon a probe, or of Monsell's solution of the subsulphate of iron, half diluted with water, have checked uterine hemorrhages that have resisted treatment for months. In a large number of obstinate metrorrhagias in his own practice he has never seen any ill effects follow the intra-uterine application of iron. Cauterizations in catarrhal endometritis, five or six days after the menstruation has ceased, repeated once a week, often cure the catarrh.

DR. EMIL DILLENBERGER, VIENNA.

The treatment of menorrhagia, according to the Vienna school, comprises rest, horizontal position with the pelvis elevated, low diet, and cooling drinks, such as:

- | | | | | |
|---------------|----|-----------------------------|------------|----|
| 1252. | R. | Acidi tartarici, | gr. x-xxij | |
| | | Syrupi aurantii florum, | f. ʒvj | |
| | | Aque, | f. ʒxv. | M. |
| For drinking. | | | | |
| 1253. | R. | Tamarindi, | ʒj | |
| | | Fiat decoctum libræ unius, | | |
| | | Acidi sulphurici aromatici, | f. ʒj-ij | |
| | | Syrupi, | f. ʒss-j. | M. |
| For drinking. | | | | |

1254. R. Acidi sulphurici aromatici, f. ℥ ij
Syrupi, f. ℥ i. M.
One to two teaspoonfuls in a glass of water as a drink.

These directions and prescriptions, together with pure air in the room, only moderately warmed, are some of the most important points which alone will often restrain rather free bleeding.

When there is *passive hæmorrhage*, use cold dressings, injections of cold water, or the following astringents:

1255. R. Aluminis, ℥ ij-ivss
Aquæ, f. ℥ iv. M.
For vaginal injections.
1256. R. Acidi tannici, ℥ ss-iv
Aquæ, f. ℥ xv. M.
For vaginal injections.
1257. R. Zinci sulphatis, gr. x-xxxiv
Aquæ, Oj. M.
For vaginal injections.
1258. R. Catechu, ℥ ij
Aquæ, f. ℥ xv. M.
For vaginal injections.
1259. R. Extracti krameriæ, ℥ ij
Aquæ, f. ℥ xv. M.
For vaginal injections.

Plugging the vagina is also an effectual remedy.

Among internal remedies, those that have generally shown themselves the best are:

1260. R. Ferri chloridi, gr. xvj
Tincturæ opii, gtt. x
Syrupi tolutani, f. ℥ ij
Aquæ, f. ℥ vj. M.
A tablespoonful every one or two hours.
1261. R. Pulveris ergotæ, āā
Sacchari albi, gr. xxxiv
Olei cinnamomi, gtt. j. M.
Divide into six doses. One powder every five minutes.
1262. R. Extracti ergotæ fluidi, m_{xx}-xl
Syrupi acaciæ, f. ℥ ij
Syrupi aurantii florum, f. ℥ ss
Aquæ, f. ℥ iij. M.
One tablespoonful four times a day.
1263. R. Extracti krameriæ, gr. vj-xx
Aluminis, āā
Sacchari albi, gr. xxij
Olei cinnamomi, gtt. j. M.
Divide into six powders. One powder every two or five hours.

1264. R.	Aluminis, Tincturæ cinnamomi, Syrupi aurantii corticis, Aquæ cinnamomi,	gr. xxxij f. 3 ij f. 3 ss f. 3 iv.	M.
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One tablespoonful hourly.

NOTES ON REMEDIES.

Achillea Millefolium, yarrow, has beneficial properties where the excessive flow depends on atony of the organs.

Acida. The mineral acids internally have been familiar to the profession for many years as remedies for excessive flowing, but their efficacy has been doubted of late years.

Alumen often proves successful in controlling the hemorrhage. D. E. J. TILLY, of London, says that in uterine hemorrhage, alum, in solution with sulphuric acid, is the first remedy to try.

Ammonii Bromidum. In case of *too frequent menstruation*, not specially connected with menorrhagia, but rather with abnormal activity of the genital system, Dr. J. R. BLACK, of Ohio, has found decided benefit from this drug, gr. x four times daily, beginning at least a week before the expected menses. (*Half-Yearly Compendium*, July, 1879.)

Argenti Oxidum is an efficient remedy in menorrhagia. More than three grains daily should not be given.

Arseniosum Acidum. Fowler's solution is said to check uterine hemorrhage, given at first in the dose of $\text{m} \times$ –xx, and repeated in ten-minim doses every twenty minutes until the discharge ceases. This remedy must not, of course, be pushed too far. In the *Practitioner*, February, 1880, Dr. G. S. A. RANKING testifies to the great value of ten-drop doses of Fowler's solution in uterine hemorrhage, given twice a day, either alone or in combination with a mineral acid.

Berberiæ Sulphas. Dr. R. H. ANDREWS, of Pennsylvania, (*Trans. of the Pa. State Med. Soc.*, 1877,) reports very satisfactory results with this drug in cases of profuse, exhausting menstruation. He prescribed the remedy as follows :

1265. R.	Berberiæ sulphatis, Sacchar.,	ʒj. 3 iss.	M.
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Make 12 powders.

One of these powders is directed to be taken when the flow is very free, or if not free, in three or four days after the menses have appeared ; repeated in four or eight hours, according to indications. The effects of such an administration of the remedy are a cessation of the profuse flow, diminution in the length of the period, and in a measure curative of the disease.

Borax is employed by some practitioners. (See under *Ergota*.)

Caffea. In uterine hemorrhage Dr. DESTRES uses strong coffee, of which he makes his patients take four or five cups daily. He attributes to it properties analogous to those of ergot, and employs it under the same conditions.

Cannabis Indica. Dr. CHURCHILL, of Dublin, obtains from the tincture of Indian hemp, in doses of gtt. v-x, thrice daily, remarkable success in the treatment of menorrhagia and uterine hemorrhage. Dr. THOMAS, of New York, pronounces it one of the best agents at our command in this disease.

Catechu may be used in passive hemorrhage.

Cimicifuga. Dr. RINGER, of London, says this remedy will certainly arrest menorrhagia, though he regards it as inferior in this affection to the bromide of potassium.

Cinnamomum is a grateful stomachic, and nearly always of value in uterine hemorrhages. It may be given as tincture or in the powder, ʒj. at a dose.

Digitalis is useful in menorrhagia and other forms of uterine hemorrhage, unconnected with organic disease. Dr. E. J. TILT, of London, employs the following :

1266.	R.	Tincturæ digitalis,	f. ʒij	
		Acidi hydrocyanici diluti,	℥xxx	
		Morphiæ acetatis,	gr. j	
		Aquæ,	ad f. ʒvj.	M.

A dessertspoonful every two or three hours.

Dr. W. H. DICKINSON recommends the infusion, ʒj-iss.

Ergota, though not equally beneficial in all cases, is a useful remedy in menorrhagia. Dr. WARING-CURRAN states (*Medical Press*, Nov. 17th, 1869,) that it proves most useful in that form of menorrhagia which occurs in women of a scrofulous habit, who suffer from constipated debility, and in whom leucorrhœa exists as a consequence of previous hemorrhage. He gives freshly prepared infusion of ergot and borax in menorrhagia from obstructive cardiac disease, in that associated with a diseased portal system, in that consequent upon a scorbutic state of the system, and in genuine menorrhagia (*i. e.*, an increase of the catamenia, continuing for a lengthened period, and returning before the proper period, without organic lesion.) He finds it has little or no effect in menorrhagia dependent upon ulceration of the os, the presence of polypous growths or other tumors, or in that arising from retroflexion of the uterus. Ergotin, subcutaneously, should not be neglected. AITHILL prescribes it in the form of infusion, and if symptoms of ovarian irritation exist, adds bromide of potassium in full doses. If anæmic, ten drops of tincture of iron with three to five drops of solution of strychnia to each dose of ergot. The strychnia increases in a marked degree the action of ergot.

Ferrum. The preparations of iron should be given when there is defective assimilation and nutrition, but must not be exhibited in a routine manner. There are cases of menorrhagia associated with pallor and debility, where the usual compound of iron and extract of ergot is not so useful as a non-chalybeate treatment. In these cases it is not any imperfection in the process of blood manufacture which is to be remedied, for the blood is made rapidly and quickly, only to be lost at each menstrual period. It is here desirable rather to limit the rapidity of the blood formation, so that when the severe vascular turbulence of the menstrual period comes, it will not find the blood-vessels too distended with blood. This will lead to diminished catamenial loss, and so the blood-waste will be economized.

Gallicum Acidum was much employed by the late Sir J. Y. SIMPSON, of Edinburgh, in atonic menorrhagia. He gave it in doses of gr. x., xv. or xx. daily, and continued its use during the intervals, as well as the period of discharge. Dr. E. J. TILT, of London, while testifying to its value as an astringent in many cases, finds that it often fails when the hemorrhage depends upon organic lesions. Dr. WILLIAM GOODELL gives it in doses of gr. xx.-xxx. every two hours, in syrup or molasses. Dr. T. H. TANNER prescribes :

1267. R.	Acidi gallici,	gr. xv-xxv	
	Acidi sulphurici aromatici,	℥ xv-xx.	
	Tincturæ cinnamomi,	f. 3 ij	
	Aquæ,	q. s. ad f. 3 ss.	M.

For one dose in profuse menorrhagia. Mix with two or three tablespoonfuls of water, and take every few hours, until the bleeding ceases.

Dr. ATTHILL gives it with ergot, ten grains of each.

Hamamelis has been recommended, in doses of a few drops of the fluid extract. Its virtues are questionable.

Ipecacuanha, in full emetic doses, is often productive of the best results. Under the use of gr. xx. of the powdered root, in the evening, followed by an acidulated draught in the morning, the discharge frequently ceases in twenty-four hours; if a relapse occurs, a repetition of the emetic seldom fails to make the cure permanent. Dr. TYLER SMITH thus explains its action in these cases: by its emetic power, it excites contraction of the abdominal muscles and compression of the uterus, which may, in turn, re-excite some amount of uterine reflex action; but beyond this, it appears to have a special action upon the uterus, increasing its contractile power beyond what could be imagined to occur from the merely secondary effects of vomiting. *Ipecacuanha* thus appears to influence the medulla oblongata and the lower medulla spinalis. This double action upon the extremities of the spinal centre, is very extraordinary.

Krameria is particularly useful in menorrhagia occurring about the usual time of the cessation of the menses. Dr. DEWEES employed the following formula :

1268.	R.	Extracti kramerie,	3ij	
		Pulveris rhei,	3ss	
		Syrupi,	q. s.	M.

Divide into forty pills, and order two thrice daily.

Magnesia Sulphas is recommended by Dr. GRAHAM HEWITT, of London, who found a mixture containing very small doses of this salt, with a little dilute sulphuric acid and syrup, very useful during the time of the catamenial flow.

Matico. The pounded leaves, made into a paste and introduced into the vagina, are said to arrest the hemorrhage, after the failure of a strong solution of nitrate of silver.

Plumbi Acetas often succeeds in severe cases, when given in enema :

1269.	R.	Plumbi acetatis,	gr. xv-xx	
		Tincturæ opii,	℥xl	
		Mucilaginis,	f. 3ij.	M.

For enema.

In mild cases, the internal administration of sugar of lead and opium is usually successful. Dr. WORKMAN, of Canada, gives it in doses of gr. xxx., repeatedly.

Potassii Bromidum is a favorite remedy of Dr. RINGER, of London, who lays down the following rules for its administration in menorrhagia : If the loss of blood occurs only at the natural menstrual period, it will be sufficient to begin the medicine about a week before the discharge is expected ; and when this has for a time ceased, it should be discontinued till the next attack is about to begin. If, on the other hand, the loss of blood occurs every fortnight, or oftener, it should be given without any intermission, till the disease is well controlled ; and when the discharge has been brought to its right period and amount, a few doses should be given for a short time before each period. It has less control over uterine hemorrhage due to tumors of the uterus, than ergot and other remedies. In *ovarian menorrhagia*, indicated by tenderness of the ovaries, Dr. ALFRED MEADOWS has found no drug which possesses so great power as the bromides :

1270.	R.	Potassii bromidi,	gr. xxx	
		Syrupi ferri bromidi,	3j.	M.

This amount in water thrice daily. Locally, a pessary containing conia, gr. j, atropia, gr. $\frac{1}{2}$, in the vagina every night. (*British Medical Journal*, July 12th, 1879.)

Potassii Chloras. This is a very valuable agent in all forms of the hemorrhagic diathesis, as is ably shown by Dr. ALEXANDER HARKIN. (*Brit.*

Med. Jour., (October 30th, 1880.) He uses in menorrhagia from this cause :

1271. R. Potassii chloratis, Aque,	$\frac{3}{4}$ j $\frac{3}{4}$ xx.	M.
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One ounce three times a day.

Often some tincture of the chloride of iron may advantageously be added to this.

Quinia Sulphas. In malarious districts, full doses of quinia are often the only remedial means efficient or required in this form of hemorrhage. Dr. BARNES always uses it in hemorrhage from sub-involution.

Sabina. PHILLIPS has derived great benefit from gtt. v-x. of the tincture, in a tablespoonful of cold water every half hour, in menorrhagia. ARAN considers it one of the most valuable agents in hemorrhage from an atonic condition of the uterus.

Sclerotinicum Acidum. This derivative of ergot has been employed by Dr. STUMPF. (*Deutsches Archiv für Klinische Medizin*, Oct., 1879.) The dose employed varied from two to sixty centigrammes : no symptom of poisoning was observed. The results obtained in the treatment of hemorrhages were such as to show that sclerotinic acid may fairly be ranked as equal in therapeutic value to the other preparations of the ergot of rye ; bearing in mind the rapidity of its action, and its relative harmlessness when used hypodermically, it may be regarded as superior to ergotine. In three cases of profuse menorrhagia, 8 to 20 centigrammes sufficed to arrest the discharge. Metrorrhagia, especially that due to chronic metritis, was more obstinate, though in some instances a rapid cure was effected ; 3 to 4 injections were generally required, and in one case eighteen.

Sodii Salicylas. Dr. A. SCHOTT, (*Volkmann's Klinische Beiträge*, No. 161,) says of this substance : "The best results are obtained in cases of menorrhagia and congestions of the pelvic organs by salicylate of soda. It acts as an anti-pyretic and anti-hemorrhagic remedy. It is highly beneficial, especially when there is congestion, swelling, pain, and slight elevation of temperature. Where it causes slight nausea, it can be given per rectum, by means of a long rectal tube. An elastic catheter (male) and a glass syringe are sufficient for the purpose, and the patients can use it themselves. From fifteen to thirty grains of the remedy are administered for this purpose every hour, until the bleeding stops : if it returns, renew the dose. In obstinate cases large doses ought to be used. It causes ringing in the ears and temporary deafness. Only in affections of the heart is its use contra-indicated. By this treatment menstruations that lasted twelve to thirteen days, with great pain, ceased on the second day. My experience with this remedy extends over a period of several years."

Sponge Tents. Dilatation of the cervix by sponge tents has been found by Dr. G. H. LYMAN and other gynecologists, greatly to reduce the flow of blood in numerous cases of metrorrhagia. (*Amer. Gynecol Trans.*, 1877.) He believes that the real cause of the persistent hemorrhage is in many cases some peculiar condition of the cervix, which strangulates the circulation, the removal of which condition promptly arrests the flow.

Heat. Vaginal injections of water as hot as it can be borne, prove of great service in many cases. Rubber bags or bottles filled with hot water, or a hot tile, plate or brick wrapped in flannel, applied to the sacrum, are likewise efficient. Bags of sand or salt may be heated and applied in the same manner. They should in all cases be *hot*, and not merely warm. Dr. JOHN CHAPMAN believes a temperature of 115° Fah. to be sufficient in nearly all cases.

Hot Hand-baths. Prof. J. QUISSAC, of Montpellier, recommends as a successful revulsive in metrorrhagia, soaking the hands in hot water. (*Thérapeutique Médicale*, 1879.)

Cold may be applied by cloths or ice-bladders to the uterus, vulva, and thighs; or Chapman's ice-bags to the sacrum; or by injections of ice-water into the rectum or vagina. Dr. T. G. THOMAS recommends that cold drinks only should be used, and the ingestion of all warm fluids strictly forbidden. In obstinate cases a change of residence from a warm to a cold climate often accomplishes a great deal of good. A lump of ice inserted into the vagina was the only hemostatic employed by Madame RECAMIER. Dr. L. S. OPPENHEIMER, of Louisville, speaks strongly in favor of the cold hip-bath. (*Louisville Med. News*, Aug. 3d, 1878.) He says: "I have seen cases of metrorrhagia lasting for over a month, permanently cured by this method alone in a few days. The mode of administration of these baths is not that of an ordinary hip-bath, but differs in that the water must be *en courant*. The stream should be so gentle at first as not to be felt by the patient, and gradually increased in force. The whole bath should not last longer than two minutes on the first day, then upon each succeeding day the length of time increased one minute."

CHAPTER II.

DISEASES OF THE UTERUS AND ITS ANNEXES.

Synopsis of Diagnostic Points—Metritis (Non-puerperal Endo-, Peri-, and Parametritis, Uterine Catarrh, etc.)—Cervicitis (Ulcerations and Granulations of the Os, etc.)—Displacements—Non-malignant Growths (Polypi, Fibroids, etc.)—Malignant Growths—Sterility and Anaphrodisia—Nymphomania.

SYNOPSIS OF DIAGNOSTIC POINTS.

GENERAL OBSERVATIONS.

The most enlightened schools of modern gynecologists discountenance making gynecology a specialty, either in diagnosis or treatment. In other words, they insist on studying it as a department of general medicine. "There is, in truth," says Dr. ROBERT BARNES in a recent lecture, (*Lancet*, May 25th, 1878), "nothing more special in gynecology than there is in the study of heart disease, lung disease, or any other disease."

As general rules in the diagnosis of uterine disease, Dr. BARNES recommends that all the functions and organs be studied in a certain regular order, as follows:

- (1) Aspect, plumpness, color and state of the skin generally.
- (2) The circulation, pulse, respiration, and temperature.
- (3) Nutrition, the tongue, appetite, digestion, stomach, intestines, defecation, and bile.
- (4) The urinary organs, the kidneys and bladder, as to pain, as to retention or other characters, as well as the characters of the urine itself.
- (5) The nervous system, sleep, motor power, general languor or exaltation, excito-motory system, mental state, delirium, pain, and its seat and kind.
- (6) The sexual organs, the menstrual functions, child-bearing, and the secretions.

All these phenomena should be, as far as possible, explored by

the aid of manipulation, and the appropriate instruments of exploration. It is a dangerous thing to form a subjective diagnosis; it is equally dangerous to accept the diagnosis from the patient.

With regard to the special symptoms and signs which an examination of the uterus and uterine functions may disclose, we quote from a lecture by Dr. GRAILY HEWITT, the following two lists; the first, (A) a list of the symptoms of all kinds which may be observed in connection with diseases or affections of the uterus, these symptoms being placed as nearly as possible in their order of frequency. The second (B) is a list of the various physical changes which the uterus may undergo:

A. UTERINE SYMPTOMS.

- Pain { 1. Spontaneous.
2. Produced by motion (dyskinesia.)
3. Undue sensitiveness of uterus to touch.
- Leucorrhœa.
Dysmenorrhœa.
Menorrhagia.
Amenorrhœa.
[If married—Sterility, abortions.]
Various reflex phenomena :—
1. Sickness or nausea.
2. Hysteria.
3. Convulsions.
4. Cephalalgia.
5. Melancholia.
- Disturbance of functions of bladder.
Disturbance of functions of rectum.
Disturbance of sexual functions (dyspareunia.)

B. UTERINE CHANGES (NON-ORGANIC.)

- Change in position.
Change in size of walls.
Change in size of cavity.
Change in size of cervix.
Change in shape.
Change in patulency of canals.
Change in texture.
Undue hardness.
Undue softness.
Increased vascularity.
Disorders of innervation.
Increased secretion.

UTERINE INFLAMMATIONS

Are usually divided into the acute and chronic forms of metritis, endometritis, cervicitis, and endocervicitis. The distinction has also been made between parametritis and perimetritis and various forms of inflammation of the os, as granular, catarrhal, ulcerative, etc.

So far as treatment is concerned, in nearly all cases it is sufficient to distinguish between cervicitis, in which the os is alone or principally affected, and metritis, in which the body of the womb is also implicated.

The distinctions which have been drawn between endometritis and endocervicitis, are compared by Dr. ETHERIDGE on the following page:

1. METRITIS.

2. CERVICITIS.

	Acute. (<i>Very rare.</i>)	Chronic.	Chronic.
1. General	<p><i>a.</i> Violent pelvic pain, accompanied with rectal, vesical, and uterine tenesmus, and sometimes with nausea and vomiting.</p> <p><i>b.</i> Pressure over abdomen reveals great sensitiveness.</p>	<p><i>a.</i> Dull, heavy, dragging pain in pelvis, increased by locomotion.</p> <p><i>b.</i> Defecation and coition painful.</p> <p><i>c.</i> Menses accompanied with pain, which begins several days previous.</p> <p><i>d.</i> Pain in mammae during and before menstruation.</p> <p><i>e.</i> Darkening of areolæ of the breast.</p> <p><i>f.</i> Nausea and vomiting.</p> <p><i>g.</i> Great nervous disturbance.</p> <p><i>h.</i> Pressure on rectum, with hemorrhoids and tenesmus.</p> <p><i>i.</i> Pressure on bladder, with vesical tenesmus.</p>	<p><i>a.</i> Pain in back and loins.</p> <p><i>b.</i> Pressure on bladder and rectum.</p> <p><i>c.</i> Painful and sometimes profuse menstruation.</p> <p><i>d.</i> Difficulty of locomotion.</p> <p><i>e.</i> Nervous disorders.</p> <p><i>f.</i> Pain during sexual intercourse.</p> <p><i>g.</i> Dyspepsia, headache, general lassitude and debility.</p>
2. Touch.	<p><i>a.</i> Vagina hot and dry, unless from co-existing endometritis, there be purulent discharge.</p> <p><i>b.</i> Organ low in pelvis, os enlarged, cervix swollen, pressure on cervix very painful.</p> <p><i>c.</i> Painful tenderness most apparent upon rectal touch and conjoined manipulation.</p>	<p><i>a.</i> Enlargement.</p> <p><i>b.</i> Tenderness.</p>	<p><i>a.</i> Uterus low down.</p> <p><i>b.</i> Cervix large, swollen, and painful, and os may admit finger.</p> <p><i>c.</i> Usually tender.</p>
3. Speculum.	<i>a.</i> Usually produces too much pain to be used.	Nothing revealed specially.	Confirms signs evinced by touch.
4. Probe.	<i>a.</i> Produces intolerable pain, and cannot usually be resorted to.	<i>a.</i> Usually reveals some flexion or version, tenderness.	Reveals great sensitiveness before reaching os internum, but nothing beyond that.

3. ENDOMETRITIS.		4. ENDOCERVICITIS.	
	Chronic.	Acute.	Chronic.
General	<p><i>a.</i> Leucorrhœa; streaked, glairy, and sometimes bloody.</p> <p><i>b.</i> Menstrual disorders.</p> <p><i>c.</i> Pain in back, groins and hypogastrium.</p> <p><i>d.</i> Nervous disorders.</p> <p><i>e.</i> Tympanitis.</p> <p><i>f.</i> Symptoms of pregnancy.</p> <p><i>g.</i> Sterility.</p>	<p><i>a.</i> Dragging weight and pain in pelvis, pain in back, groin and thighs.</p> <p><i>b.</i> Rectal and vesical tenesmus.</p> <p><i>c.</i> Purulent discharge, sometimes bloody after 3 or 4 days.</p> <p><i>d.</i> Tympanitis and tenderness of abdomen.</p>	<p><i>a.</i> Dragging sensation in the pelvis.</p> <p><i>b.</i> Pain in back and loins increased by exercise.</p> <p><i>c.</i> Profuse, irritating leucorrhœa, like boiled starch.</p> <p><i>d.</i> Menses, too scanty or <i>vice versa</i>, too frequent or <i>vice versa</i>.</p> <p><i>e.</i> Nervous, irascible, moody, or even hysterical.</p> <p><i>f.</i> Digestion impaired, ultimately <i>spanæmia</i>, sometimes nausea, etc.</p>
Touch.	<p><i>a.</i> Conjoined manipulation reveals tenderness of fundus.</p>	<p><i>a.</i> Vagina hot and dry, or covered with above discharge.</p> <p><i>b.</i> Os gaping, cervix swollen and tender, body slightly enlarged, whole organ lower in pelvis than normal.</p>	<p><i>a.</i> Os in normal position, may be enlarged, lips puffy or may be roughened.</p> <p><i>b.</i> Pain results from placing the finger under the cervix and pressing up-wards.</p>
Speculum.	<p><i>a.</i> Reveals nothing special.</p>	<p><i>a.</i> Cervix puffy, swollen and red, fluid exuding from os, either clear, albuminous looking, mucopus, or stringy and tenacious.</p>	<p><i>a.</i> Long, stringy, tough, tenacious mucus, difficult to remove, exuding from os.</p> <p><i>b.</i> Cervix not usually enlarged, may be puffy and swollen and very red, as if ulcerated, due to removal of investing epithelium.</p>
Probe.	<p><i>a.</i> Patulous os internum.</p> <p><i>b.</i> Uterine cavity prolonged.</p> <p><i>c.</i> Tenderness. Withdrawal followed by blood.</p>	<p><i>a.</i> Great tenderness throughout whole organ, and removal followed by a few drops of blood.</p>	<p><i>a.</i> Meets with obstruction at os internum.</p> <p><i>b.</i> Does <i>not</i> produce pain by striking against the walls of the fundus, nor is its removal followed by blood or mucus.</p>

METRITIS (NON-PUERPERAL, ENDO-, PERI-, AND PARAMETRITIS, UTERINE CATARRH, ETC.)

PROF. WM. H. BYFORD, M. D., OF CHICAGO.

Treatment of chronic inflammations of the uterus, is divided into the general and local treatment.

General Treatment. The patient must be placed under the best practicable hygienic and dietetic rules, and sexual congress forbidden during treatment. For the nervous prostration, *fresh and cold air* is one of the most valuable tonics. The patient should be in the open air as much as possible; or if confined to the house, she should be well covered, and all the windows and doors of the room thrown open several times daily. She should keep in open cold rooms; and the use of stimulants, to which such cases are given, should be forbidden. For the nervous excitability, regular rest, exercise, and outdoor exposure, are the most efficacious means. Medicines, as a rule, are not well borne in these cases. Quinine, nux vomica, wild cherry and chamomile, are the best. Stimulants must be exhibited cautiously, and opium is generally not well borne. Nervous headache, insomnia and neuralgic pains, are often greatly relieved by bromide of potassium in full doses (gr. xxx-lx every hour in abundance of water, until relieved). Anæmia and plethora, if present, must be appropriately met. Constipation is often present, and must be overcome by prompt attention to the desire of defecation, by a full vegetable diet, (especially fruits,) and by drugs. Of the latter, sulphate of magnesia, \mathfrak{v} j-iv, may be given with some acid in the morning; or gr. vj-x of blue mass may be given every fourth or fifth night, followed by Epsom salts in the morning. When, through long habit, the secretions of the intestines are scanty, and their coats atonic, a special tonic is called for. Simple and effective formulæ are:

1275.	R.	Strychniæ sulphatis, Ferri sulphatis, Acidi sulphurici diluti, Aquæ,	gr. j gr. viij q. s. f. \mathfrak{z} ij.	M.
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For a solution. One teaspoonful three times a day after eating.

1276.	R.	Strychniæ sulphatis, Extracti rhei, Ferri sulphatis,	gr. j \mathfrak{D} iss gr. x.	M.
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For sixteen pills. One to be taken once, twice or three time a day, as may be necessary.

1277. R. Quiniæ sulphatis, gr. j
 Pulveris nucis vomicæ, gr. v. M.
 For one pill. To be taken after each meal.

These are our most valuable remedial agents. *Massage* is not unfrequently a valuable aid. (See *Résumé of Remedies* for the method employed.) Cold water may be thrown into the rectum twice a day in small quantities, say f.̄viiij. Or a suppository may be used, as:

1278. R. Extracti gentianæ, ʒj
 Butyri cocœæ, q. s. M.
 For a rectal suppository.

Quinine, gr. v., may be employed in a similar manner.

As a means of relaxing the sphincter ani, and removing its irritability, we can sometimes employ with advantage, an ointment of belladonna:

1279. R. Extracti belladonnæ, ʒij
 Unguenti, ʒj. M.
 Apply to the anus externally on going to bed at night.

When the rectum is weak and becomes readily filled with accumulated fæces, this can in a measure be prevented by wearing an air or sponge pessary, which will press the rectum against the sacrum and thus reduce its capacity.

Local Treatment. Of the local measures employed, *baths* may be first mentioned. *Injections* are internal baths. The most common bath is the sitz, or hip-bath. Where there is much pain, with little inflammatory action, this often affords great relief. In many cases the patient can advantageously introduce a speculum while in the bath, so that the medicated water can readily reach the uterus. That temperature should be chosen which is most comfortable to the patient. Vaginal *injections* are applicable to almost all cases of cervical inflammation. Dr. BYFORD condemns intra-uterine injections as dangerous. The quantity of simple injections should generally be large—from one to eight quarts. Astringent injections ought not to be used more often than twice a day, the rule being never to repeat so long as the vagina is dry from the preceding one. The temperature should be governed by the feelings of the patient.

Anodyne, astringent and alterative suppositories, pessaries, and powders, may be resorted to with profit in many instances. The

"suppository syringe" will enable the patient to place ointment in contact with the uterus very conveniently. In using narcotics in the vagina, the proper dose is double that by the mouth. The vaginal mucous membrane absorbs much more slowly than that of the rectum.

The local remedies mostly employed by Dr. B. are the various depletory measures, nitrate of silver, tannin, acid nitrate of mercury, nitric acid, and caustic potassa.

Nitrate of silver, he prefers in the solid form. It should be slowly and gently passed over the inflamed or ulcerated part. If we use no more force than is necessary to keep it in contact with the part, there is no danger of keeping it there too long. It can be applied about once in six days. If applied in solution it should be strong—one part to four of water. It is not so applicable in aged persons, and they are often made worse by it. Creosote or caustic potassa is better in these cases. It also sometimes causes such severe pain that a substitute must be found.

DR. LOMBE ATTHILL, OF DUBLIN.

Chronic Endometritis. This disease presents itself in two forms, requiring different treatment. 1. As it appears in women who have borne children; and 2, in nulliparæ and virgins.

In women who have borne children, the os is patulous and the sound is readily introduced, although causing pain. The lips of the os are usually swollen and soft. An important preliminary step in such cases, is *local depletion* by puncturing the cervix. One or two punctures, one-eighth of an inch in depth, will generally be followed by sufficiently free bleeding. To this should follow the application of strong caustics to the interior of the uterus. Dr. A. prefers *nitric acid* and the solid *nitrate of silver*. Nitric acid seldom causes any pain if properly applied, and it has a wonderful effect in bringing about a healthy condition of the mucous membrane. It is readily applied on cotton, through the author's platinum canula or similar instrument. Carbolic acid may also prove servicable in mild cases. If vegetations on the endometrium exist, they should be removed with the curette before the caustic is applied.

In virgins and women who have never been pregnant, endometritis is usually accompanied by an elongated, probably swollen and congested cervix uteri, with a very small os from which a clear and slightly viscid discharge exudes. Flexion of the fundus is also often

present. In these cases, the first indication is *division of the cervix*, so as to insure a free escape for the contents of the uterus. Often this procedure will be sufficient; if it is not, we should have recourse to the subsequent treatment of the unhealthy mucus membrane by the application of carbolic acid, or some similar agent.

Dr. A. regards *blisters* as of great value in chronic metritis and endometritis, where local blood-letting does not relieve. He applies them of small size, about two inches in diameter, and repeats them at intervals of a few days, placing them alternately over the sacrum and over the pubes, or over the ovary, if that be the chief seat of pain.

In debilitated patients the application of *iodine* is preferable to blisters, as it does not weaken so much. Its use must be continued for weeks, and it is best to direct it to be rubbed in over a limited space only, and when that spot becomes tender, to apply it to an adjoining part.

To relieve the distressing *backache* in these affections, Dr. A. recommends:

1280.	R.	Linimenti camphoræ comp.,	f. 3x	
		Tincturæ aconiti,		
		Chloroformi,	āā	f. 3 iij. M.
For a liniment.				

Or,

1281.	R.	Unguenti veratriæ,		
		Unguenti potassii iodidi,	Partes equales.	M.
For an ointment.				

Either of these is to be well rubbed in over the seat of pain.

CAIN, (*Medical News*, July 11, 1891,) condemns most methods for the cure of this affection, and gives the detail of his own, as follows:

He first makes free use of the curette for the removal of fungoid vegetations and adenoid degenerations of the endometrium.

This is followed by an application of CHURCHILL'S tincture of iodine or diluted carbolic acid. The treatment is always preceded by a washing out of the vagina and uterus with a solution of 1-2000 of corrosive sublimate. When this treatment is not admissible, or if it fails, negative galvanism is his next reliance. This should be used for ten or fifteen minutes, twice a week. The strength of the current will depend largely upon the acuteness of the case and the susceptibility of the patient.

The chronic cases always require the strongest currents. The dosage may be fixed at ten to two hundred milliamperes.

DR. L. DE SINETY, OF PARIS.

Metritis. This author rejects the classification of metritis into internal and parenchymatous, believing that it is useless for practical purposes. He also believes, contrary to many, that acute metritis is occasionally found in unmarried women. The treatment depends upon the stage of the disease. At the outset he recommends fifteen or twenty leeches to the abdomen, complete warm baths prolonged two or three hours, or else ice-bags to the abdomen and opiates internally. Opium may also be employed profitably by rectal injections. In the early stages of the malady, the speculum must not be used, but later it may be introduced and scarifications made on the os. This local bleeding may be repeated every third day, and it will often prevent the inflammation from becoming chronic.

When the disease is in its chronic stage, iron and the bitters are nearly always required. Alcoholic tonics, however, are injurious, and sometimes iron aggravates the disease. For local treatment, astringent injections are of little value; nor have cauterizations of the cervical cavity proved much better. Sometimes pencils of tannin and carbolic acid left to dissolve in the cervical canal have done well.

1282. R.	Acidi carbolic crystal, Glycerinæ, Acidi tannici, Pulv. tragacanth.	gr. iv gtt. v 3j q. s.	M.
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For pencils three centimetres long and three or four millimetres in diameter.

Nevertheless, he prefers liquid caustics, especially *chromic acid*, which, with certain precautions, he claims presents great advantages in the treatment of uterine affections. He uses a solution of equal parts of crystallized chromic acid and distilled water. In the intervals between the periods of cauterization, he advises daily dressings with tampons wet with the following mixture:

1283. R.	Acidi carbolic cryst., Alcoholis, Glycerinæ, Acidi tannici,	gr. v gtt. x f. 3j gr. xxx.	M.
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In the *hemorrhagic* form of the disease, digitalis, quinine and

ergot have been recommended. None of these means has given satisfaction. It is better to cauterize the interior of the uterus with the solid caustic. After this operation the patient should keep her bed one or two days.

In regard to intra-uterine injections, our author believes that they should be reserved for cases in which every other means has failed, on account of the hemorrhages sometimes following them.

Chronic Parenchymatous Metritis. In this variety Dr. SINEY believes that ergot is indicated in cases resulting from sub-involution after confinement. It may be employed either by the mouth or by subcutaneous injections of ergotine. Sometimes this reduces hypertrophy of the uterus in a few weeks, but at other times fails entirely. Hydrotherapy renders very great service if carried out. Simple baths of an hour in duration every day are often successful. Thermal waters have many advocates, but they must be directed with great caution, and the indications are by no means clear for their use. Generally speaking, uterine and vaginal douches should be avoided; and weak alkaline waters preferred to others.

Locally, scarifications of the os every four or five days are required at the outset, especially when the organ is red and injected. When it is pale, hard and resisting, the actual cautery gives good results. This operation is not painful when properly performed.

Various complications occur in this disease, such as pruritus vulvæ, cystitis, dyspepsia, etc., which must be treated as they arise. Conjugal relations should be forbidden, and exercise enjoined.

Uterine Dyspepsia. Among the complications of uterine inflammation, *dyspepsia* is one of the more frequent. A writer in the *Revue Méd. Chirurgicale des Maladies des Femmes*, Feb., 1880, says that whatever be its form, it is admirably treated in lymphatic temperaments by means of the *bromurated tincture of iodine*:

1284. R.	Tr. iodinii,	1 gm	
	Potass. bromidi,	4 "	
	Syr. tolutani,	300 "	M.

A dessertspoonful before each meal.

In the strumous, it is better to employ the iodurated tincture.

In arthritic subjects, *sulphur* with *magnesia* is the best to employ; we should give the preference:

1285. R.	Sulphur. sublimati,	4 "	
	Magnes. calcinatæ,		M.

For ten powders.

The solution of *arsenate of soda*, one to ten thousand, should be used in the dyspepsia of those of herpetic diathesis, affected with uterine diseases:

1286. R. Sodii arseniati,
Aque,

10 centigram
1 litre. M.

A dessertspoonful in the middle of each meal.

The constipation which is generally present in these cases, should be combatted at the same time.

GOTTSCHALK, (*Centralblatt f. Gynäkologie*, March 21, 1891,) has used thiol in inflammation of the uterus and its appendages, for nine months.

He treats para- and perimetritis exudates, with vaginal tampons impregnated with a ten to twenty per cent. glycerin solution of the drug. At the same time the abdomen is rubbed once daily with an ointment containing the same remedy. After the tampon has been placed, the patient feels, as a rule, a "drawing up" of the belly, and there is a free flow of vaginal secretions. The tampon is removed in twenty-four hours, and the flow ceases. The skin is affected much the same as after applying iodine, and after six or eight daily applications, it must be allowed to regain itself. GOTTSCHALK has not failed to effect a cure in any case of the kind by using the above treatment. Baths and massage are useful adjuncts to the treatment.

Inflammatory erosions about the vagina are cured by using thiol as a dusting powder. Acute and chronic endometritis also yield to the drug when applied, in solution, to the uterine cavity. The application is painless and without danger.

SKUTSCH, (*Internationale Klinische Rundschau*, Vienna, June 14, 1890,) divides the affection into two varieties—hæmorrhagic and catarrhal.

His treatment for the former is curetting and cauterization. For the catarrhal form, after dilatation, the uterus is first irrigated with a 3 per cent. solution of soda, and then a 2½ per cent. solution of carbolic acid is applied.

The canal must be kept dilated, and for this purpose he prefers gauze to tents.

He gives special emphasis to the necessity of keeping the canal well dilated.

MADDER, (*Sanities of the Annual*, Philad., February, 1890,) prefers rapid dilatation by means of Hogan or Tait's dilator. When

there is congestion, hypertrophy and sub-involution present, he prefers a solution of iodine in glycerine, and following this, the introduction of a small tampon, soaked in a saturated solution of tannic acid in rectified turpentine (tanno-terebinth). This tampon is expelled in twenty-four hours. Then he introduces powdered boric acid by means of an insufflator. For chronic, corporeal endometritis, after curetting, he employs fuming nitric acid, and in all cases he recommends constitutional treatment.

KOTSCHAU, (*Münchener Medicinische Wochenschrift*, January 6, 1891,) has used ichthyol with great success, in cases of cervical endometritis—16 cases of endometritis of the body of the uterus, 52 cases of perimetritis, and 27 cases of parametritis.

The cases of endometritis were treated two or three times a week. In the mild cases, the vaginal portion of the cervix was smeared over with ichthyol, and a cotton tampon, wet with a watery or glycerine solution of the drug, was introduced into the vagina. The more obstinate cases were curetted; this was in some instances repeated several times. In addition, daily vaginal irrigations were ordered, iron was given internally, and massage was used. The results were much better and quicker than after curetting, followed by iodine or zinc applications.

The pelvic inflammatory conditions were treated with tampons impregnated with ichthyol in glycerine, supplemented by ichthyol in pill form. Improvement was almost immediate, but full treatment extended over a month.

PROF. T. GAILLARD THOMAS, NEW YORK,

Insists upon perfect rest in bed. He applies warm poultices in towels wrung out of hot water, to the hypogastrium, and covered with oiled-silk. The patient should be kept under the moderate doses of opium.

In chronic cervical endometritis, he relies upon *general regimen*, as the removal of depressing influences, etc.; vegetable tonics, mineral acids and iron; appropriate diet, but not stimulation; fresh air and exercise. As a tonic and cathartic he gives:

1287. R. Magnesiæ sulphatis,
Ferri sulphatis,
Ac. sulph. dil.,
Aquæ,

℥ ij
gr. xvj
f. 3 j
Oj.

M.

Two tablespoonfuls in a tumbler of iced water daily on rising.

Or,

1288. R.	Sodii et potassi tart.,	℥ ij	
	Vini ferri amari,	f. ℥ ij	
	Ac. tartarici,	f. ℥ iij	
	Aquæ,	f. ℥ xiv.	M.

Two tablespoonfuls as above.

If necessary, the draught may be repeated during the day.
As a digestive tonic, he gives :

1289. R.	One rennet washed and chopped,		
	Sherry wine,		Oj
	Macerate for twelve days, decant, filter and add		
	Ac. muriat. dilut.,		
	Tr. nucis vom.,	āā	f. ℥ ij
	Bismuthi subnit.,		℥ ij.
			M.

One teaspoonful in a quarter of a tumbler of water, before each meal.

Emollient Applications. Irrigations of the cervix for twenty or thirty minutes night and morning by warm water, with the addition of salt, glycerine, boiled starch, infusion of linseed, slippery-elm, or tincture of opium.

Alterative Applications. First, dilatation of the cervix. The surface having been thoroughly cleansed, it should be well painted with a saturated solution of copper, zinc or lead. Next a bit of cotton with a piece of stout thread attached, dipped in glycerine, should be applied to the cervix. The treatment may be repeated once a week.

Or applications may be made by means of the probe wrapped with cotton which is saturated with the solution to be employed.

INTRA-UTERINE MEDICATION.

This is applied in the various forms of injections, pledgets, ointments, pessaries, crayons or pencils, capsules and powders.

UTERINE INJECTIONS.

Prof. CARL SCHROEDER, of Berlin, recommends the following cautions in the use of uterine injections :

1. They should be avoided where there is marked tenderness or inflammation of the uterus or its appendages.
2. There must be a free exit of the injected fluid; hence, in every case, it is better first to dilate the uterine neck.
3. Only a small quantity of fluid must be injected.
4. The fluid should be slightly warmed, and slowly injected.

5. Where there is flexion of the uterus, it is advisable to draw the fluid back into the syringe after a minute or two.

Of substances used, probably the solutions of alum and iodine are the most useful, and these do not form precipitates with the albumen of the discharge, as iron, acetate of lead, nitrate of silver, etc.

The safety of uterine injections has been much debated of late years, and is doubted by Drs. T. G. THOMAS and PAUL F. MUNDE, of New York, and others; but the tendency now is to consider them as without risk, if not too violent, and performed with all necessary precautions, especially that the internal os or cervix *be fully dilated*. Nevertheless, it is true that the French writers (GALLARD, LEBLOND, GUICHARD, etc.,) reject this dilation as not necessary.

A sense of heat, some pain, and a slight febrile movement, often follow an intra-uterine injection, and continue some hours. Should these symptoms not disappear, an anodyne poultice should be laid over the abdomen, and a moderate dose of opium or morphine be given.

Contra-indications. Any acute inflammation in or near the uterus, is a *positive contra-indication* against the use of intra-uterine injections. Hence, where there is cystitis, ovaritis, or perimetritis in an acute form, we must not have recourse to this means. It is also advised, on similar grounds, to avoid this form of medication during the menstrual epoch, and for a week before and after the period.

A marked uterine flexion is also held to be a contra-indication, inasmuch as the fallopian tubes may be so displaced and dilated that the fluid may easily find its way into the peritoneum, giving rise to serious results.

Medicated Injections. One of the most successful agents in intra-uterine medication is "CHURCHILL'S tincture of iodine." According to the formula given by that author in 1864, it is made as follows;

1290. R.	Iodinii,	gr. lxxv	
	Potassii iodidi,	3 iss	
	Alcoholis,	3 j.	M.

This is used with great advantage as a stimulant, alterative, counter-irritant, caustic, and hemostatic. It has been very extensively employed in the New York State Women's Hospital. The internal os is thoroughly dilated, and the instrument used for injection is an ordinary hard-rubber uterine syringe. The patient is strictly enjoined to keep her bed for a week after the injection. In

chronic endometrial disease, and after the removal of fibroids, etc., its action is exceedingly beneficial.

Dr. E. J. TILT considers *iodine* the safest agent to inject into the uterus. He recommends the employment of a one-ounce india-rubber bottle with a pointed nozzle, fitting tightly into the end of a female catheter. The principal formulas he employs are:

1291.	R.	Tincturæ iodinii, Aquæ,	āā	f. ℥ j.	M.
1292.	R.	Liquoris ferri subsulphatis, Aquæ,		f. ℥ v f. ℥ iv.	M.
1293.	R.	Ferri perchloridi, Sodii bicarbonatis, Aquæ,		℥ ij gr. x f. ℥ iv.	M.
1294.	R.	Acidi chromici, Aquæ,		℥ ij f. ℥ j.	M.

As a vehicle, glycerine is preferred by some, as it flows more slowly, and thus exerts the action of the agent for a longer time upon the uterine walls. As it is somewhat harsh when applied pure, it should be diluted. Oil of sweet almonds may also be employed. Dr. LIEBMAN uses:

1295.	R.	Tincturæ ferri perchloridi, Glycerinæ,		1 part 10 parts.	M.
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Nitrate of silver should not be used for intra-uterine injections, as even in weak solutions it gives rise to violent uterine colics, often of long duration.

The Swedes favor the *sulphate of copper*. Dr. ECKLAND, of Sweden, states that in the severer cases with ulceration, hypertrophy and neoplasms of the papillæ, the best agent is sulphate of copper, with which, in dilute form, (1-5 to 1-50), this author has had extensive experience, applying it by means of an applicator to the entire interior of the uterus, it being very efficacious, without being followed by any inconvenience, such as erosion of the mucous membrane, which is produced by some of the other agents employed.

Prof. JAMES P. WHITE, M. D., of Buffalo, in catarrhal metritis, prefers the following as a local application:

1296.	R.	Iodi, Potassii iodidi, Acidi tannici, Glycerinæ,		℥ j ℥ ss ℥ j q. s. to dissolve.
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Dr. W. W. WILKENS, of New Hampshire, (*Half-Yearly Compend.*, 1876,) speaks very favorably of the following:

1297. R. Acidi carbolici crystal,
Aquæ,
Glycerinæ,

q. s. to dissolve.
āā equal parts. M.

This mixture will not cauterize or destroy tissue. It may be applied to a mucous membrane without inflaming it, but it will stimulate to healthy action one already inflamed. It should be applied to the entire mucous membrane of the womb every week or ten days. As a rule, no pain follows its use, and it never causes metritis or has other dangerous sequelæ.

"Lugol's solution" of iodine in a concentrated form has been found efficacious by Dr. JOSEPH KAMMERER. His formula is:

1298. R. Iodi,
Potassii iodidi,
Aquæ,

1 part
2 parts
4 parts. M.

Its use is chiefly indicated where catarrh of the uterus is combined with hypertrophy of tissue.

Where the surface is eroded, with a tendency to hemorrhage, the same practitioner employs pyroligneous acid in its undiluted form, or else carbolic acid dissolved in an equal part of water. In those cases of hypersecretion where no erosions are visible, the following is a valuable astringent:

1299. R. Zinci sulphatis,
Aquæ,

gr. x
f. 3j. M.

DR. J. R. CHADWICK, OF BOSTON,

Recommends the following method of intra-uterine injection, which is safe, and its general adoption might prevent many of the accidents now reported. Dr. CHADWICK says: "Injections into the vagina should be made with the patient lying upon her side until the fluid begins to ooze from the vulva; the patient is then gradually turned upon her face while the injection into the vagina is continued; by this plan the vagina is distended to its utmost, as in the knee and elbow position, while the uterus gravitates into the abdominal cavity and allows the fluid to flow through the patulous cervical canal into the cavity of the organ with the force of pneumatic pressure. Any air thus forced into the vagina by the syringe will remain in the vagina, and thus the possible danger of its passage into the uterine sinuses be avoided."

PLEDGETS (PINCEAUX.)

These are small masses of cotton, charpie, sponge, or other soft and porous substance, which are moistened with the medicated fluid and applied to the inner wall of the uterus. They are inserted by means of various instruments, as the "applicator" of Dr. H. E. WOODBURY, of Washington, or that devised by BARNES.

The liquids used in this manner are *tincture of iodine, perchloride of iron*, solutions of *nitrite of silver, nitric acid, iodoform, etc.* The last-mentioned agent especially, has given excellent results in the hands of a large number of practitioners, in the treatment of chronic endometritis. The slight pain which it produces and the rapidity of its effects make good its claim to be the most valuable of all applications in many cases of this malady.

The use of such pledgets is preferable to other means in the lighter forms of endometritis, where there is little or no hemorrhage, where the intra-uterine area is small, dilatation slight or absent, and the canal not tortuous. They should not be employed when inflammation is active.

CRAYONS OR PENCILS.

These are inserted into the uterine cavity and allowed to remain, the cervical canal being stopped by a plug of cotton. For example :

1300.	R.	Iodoformi,	3 iijss	
		Pulv. acaciæ,		
		Mucilaginis,	q. s.	M.

Divide into ten equal cylinders about one and a half inches long.

These pencils are hard, resisting, and capable of being divided into pieces of any length; they should be preserved from light. They are used with advantage against superficial ulcerations of the uterus. They are introduced into the cavity and allowed to remain.

Nitrate of silver has been largely used in this manner. RECAMIER introduced the solid nitrate into the body of the womb by means of Lallemand's porte caustique. Dr. TILT prefers the port caustique of Simpson, and leaves gr. v.-x. of the lunar stick to dissolve, provided the os be fully dilated.

Prof. PAJOT, (*Annales de Gynécologie*, 1877, No. 21,) takes a lamina tent two millimetres in diameter, dips it in thick mucilage, and then rolls it in finely powdered fused nitrate of silver, and allows it to dry. He thus obtains an elastic crayon of the ordinary size,

which may be introduced into the uterus without fear of breaking. He believes this means to be applicable to other cavities, and for other more powerful caustics.

The *sulphate of zinc* is also prepared in the form of crayons, twelve to fifteen centigrammes of the salt in each, for introduction in this form into the uterus; it is recommended by LEBLOND, and is considered by BARNES one of the most useful agents in uterine catarrh.

Crayons of *tannin* have been used by some, but on account of their tendency to produce severe uterine colic and other accidents, they are not to be recommended.

OINTMENTS AND GLYCEROLLES.

Dr. ROBERT BARNES remarks, (*British Medical Journal*, January, 1873,) that a most valuable way of applying almost any medicinal agent to the interior of the uterus, is in the form of an ointment or *plasma*. They can be introduced by means of a hollow sound, with a piston working in its centre, the "ointment positor." Where grease is objectionable, glycerine, cocoa butter, cosmoline, vaseline, etc., may be used. Thus bromine, iodine, mercury, etc., can be safely applied.

In simple chronic endometritis, Dr. A. LEBLOND, (*Traité de Chirurgie Gynécologique*, 1878,) has employed the following with excellent effect:

1301. R.	Cerati simplicis,	20 grammes	
	Pulveris iodoformi,		
	Olei amygdal. dulc.,	āā	5 grammes. M.
In cold weather, the amount of oil should be increased.			

Glycerolles of starch, tannin, and other substances, may also be employed.

1302. R.	Iodoformi,	•	1 part	
	Glycerinæ,		10 parts	
	Olei menth. piper,		q. s.	M.

The above glycerole of iodoform has been extensively used by Dr. E. H. KISCH. (SCHMIDT'S *Fahrbücher*, Bd. 184.) He states that it actually stimulates the resorption of exudates, alters favorably the secretion of the mucous membranes, and materially reduces excessive sensibility. * The principal uses of it are in chronic metritis, chronic endometritis, and in old inflammatory conditions of the pelvic peritoneum and cellular tissue. A piece of wadding is

wet with the above solution, and inserted in the evening, up to and against the vaginal portion of the cervix, where it is allowed to remain till morning, when it is withdrawn. In addition to this, it may be rubbed into the inguinal and hypogastric regions.

CAPSULES.

The introduction into the uterine cavity, of various medical substances enclosed in capsules has been suggested by Dr. E. P. SALE, of Aberdeen, Miss. (*American Practitioner*, June, 1875.) They may be made of gelatine, and introduced in the same manner as pledgets.

POWDERS.

The insufflation of powders of alum, tannin, calomel, iodoform, etc., into the uterine cavity, has been practiced by Prof. O. GUENEAU DE MUSSY and others. Several serious accidents have, however, resulted with most of these agents in this form, and except, perhaps, in the case of iodoform, there is not only no advantage, but perhaps danger, in this plan of medication.

PESSARIES, OR INTRA-UTERINE TENTS.

These are usually of cotton, saturated with some medicated fluid, allowed to dry, and introduced by a probe or a positor. The internal os, generally requires to be dilated before this can be done. A thread may be attached to the tent, by which it may be withdrawn after a few hours; or, it may be allowed to remain until thrown off by the action of the uterus, which usually occurs within forty-eight hours (BATTEY).

NOTES ON REMEDIES.

Acidum Carbolicum is used as a local application by PLAYFAIR.

Acidum Chromicum is advocated as a cauterant by Dr. TAIT. Its application to the uterus sometimes produces the most severe vomiting, hence it is not very safe (TAIT).

Acidum Nitricum is one of the most efficient local caustics in many cases. For introduction into the uterus, it is probably the safest of the fluid caustics. The following method of using it, is recommended by Dr. D. N. KINSMAN, as possessing advantages over all others (*Obstetric Gazette*, November, 1878): A piece of white wax smoothed down to the requisite size to enter the cervical cavity and given the proper curve, is dipped into the acid; a sufficient quantity adheres for the

purpose to which it is to be applied. The wax bougie is grasped with a pair of dressing forceps and passed into the cervix ; applied in this manner there is no excess of acid to run over adjacent parts, while there is enough to act as a caustic or alterant.

Argenti Nitras is preferred as a caustic by many physicians.

Belladonna, internally, is recommended.

Boracicum Acidum has been suggested as a useful agent.

Cupri Sulphas is used in Europe.

Ferrum. The preparations of iron are used internally as tonics, and the tincture of the chloride, locally. TAIT warns against iron in any form in chronic metritis.

Iodum in several forms is in use by nearly all practitioners. In the treatment of parenchymatous metritis, M. GALLARD gives iodine internally in almost every case—in quantities of from six to twelve drops of the tincture in mucilage, for eight or ten days every month, beginning, by preference, at the time when a menstrual flow ought to take place, for it succeeds best, he says, in cases accompanied by dysmenorrhœa or amenorrhœa.

Iodoformum, although disagreeable to most patients, has been found an excellent application.

Tannicum Acidum is an astringent of great value.

Veratria, in the form of ointment, is an efficient local anodyne.

Zinci Sulphas was applied in undiluted form to morbid uterine tissues by SIMPSON. Others have preferred it more or less diluted and made into sticks.

EXTERNAL MEASURES.

Blisters are highly commended by Dr. ATTHILL. Dr. R. PARK, (*Glasgow Med. Jour.*, October, 1880,) says that the most effectual way of treating chronic metritis, is to apply blisters about the size of a crown piece to each iliac region alternately.

Massage of the Uterus. This has been recommended in uterine atrophy, chronic metritis, and chronic uterine catarrh, by Prof. G. ASP, of Helsingford, (SCHMILT'S *Jahrbücher*, Bd. 181,) and others. The proceeding, as stated by this writer, is as follows : The operator, with one or two fingers in the vagina, grasps the body of the uterus so that he can exert upon it a steady pressure, while the counter-pressure is exerted by the other hand through the walls of the lower abdomen. If these walls are sufficiently loose and enlarged, by this procedure the uterus can be held between the fingers of the two hands, and gently pressed and kneaded. When the organ is displaced, it is usually necessary to correct the displacement before this method can be effectually used.

The kind of cases, according to Dr. A. R. JACKSON, of Chicago, in which it may prove useful, is the following: When the uterus is low down, large, tender, spongy, doughy, etc.: this condition is usually associated with hyperæmia, and *massage* would be expedient unless contra-indicated by other circumstances. After the stage of hyperæmia has passed, and that of induration has been reached, the uterus is still low in the pelvis, displaced and distorted usually, but the spongy feel has passed away, and *massage* will be found to be almost useless.

There are three modes of performing the massage: 1, through the abdominal walls; 2, through the abdominal walls and the vagina; 3, through the abdominal walls and the rectum. The first is applicable in cases in which the vagina is small or unusually tender. The patient is placed upon her back, and at first the skin and superficial tissues are subjected, by means of the fingers, to alternate pinching and rubbing. After a few days the fingers can be depressed among the tissues so as to reach the uterus, which can be alternately squeezed and rubbed for from fifteen to thirty minutes in the gentlest manner possible. The preliminary manipulation is advisable in all cases; in some it is absolutely necessary.

In cases in which the uterus has not risen above the brim of the pelvis, the abdomino-vaginal method may be employed, with one or two fingers in the vagina and those of the opposite hand in the hypogastric region. The last method is the least available, and must be limited to a small class of exceptional cases; such as those in which the vagina is so small or tender as to make it impossible to adopt the second method.

CERVICITIS (ULCERATION AND GRANULATION OF THE OS.)

ROBERT ELLIS, M. D., OF LONDON.

This author defines as follows the varieties of ulceration of the os, and what he considers the very best methods of treating them.

1. *Indolent Ulcer.* Cervix hypertrophied, of a pale pink color, and hard. Os patulous to a small extent. Ulcer of a rose red. Granulations large, flat, insensitive, and the edge of the ulcer sharply defined. Discharge: mucus, with a little pus, and occasionally a drop of blood.

Treatment. For a few minutes the caustic pencil—solid nitrate

of silver. Afterward, the solution of nitrate of silver in strong nitric acid.

2. *Inflamed Ulcer.* Cervix tender, hard, a little hypertrophied, hot and red. Vagina hot and tender. Ulcer of a vivid red. Granulations small and bleeding. A livid red border around the ulcer. Discharge: a muco-pus, yellow and viscid, with frequently a drop of bright-red blood entangled in it.

Treatment. Occasional leeching, hip-bath (warm), emollient injections. Then acid nitrate of mercury several times, succeeded by the solid lunar caustic, potassa fusa, or cum calce.

3. *Fungous Ulcer.* Cervix soft, large, spongy to the touch. Os wide open, so as to admit the finger. Ulcer large, pale, studded with large and friable granulations. Discharge: glairy, brownish mucus, frequently deeply tinged with blood.

Treatment. At first, the caustic pencil. Subsequently, nitric acid, solution of nitrate of silver, or acid nitrate of mercury; electric, or actual cautery.

4. *Senile Ulcer.* Cervix small, red, a little hard. Ulcer small, extremely sensitive, of a bright-red color. Granulations very small, red, and irritable. Discharge: a thin muco-pus.

Treatment. Potassa fusa, or strong nitric acid, with nitrate of silver once or twice at long intervals. The solid sulphate of copper, in pencil.

5. *Diphtheritic Ulcer.* Cervix of ordinary size, a little hot, dry, and tender. Ulcer covered in patches with a white membrane, adhering closely, irritable, and readily bleeding beneath. Discharge: a thin acrid mucus, without pus, but occasionally tinged with blood.

Treatment. At first, electric cautery, potassa cum calce, or acid nitrate of mercury, two or three times at long intervals. *No nitrate of silver.* Subsequently, stimulating applications, tincture of iodine, or sulphate of copper.

DR. A. LEBLOND, OF PARIS.

This writer states (*Traité Élémentaire de Chirurgie Gynécologique*, Paris, 1878,) that the treatment of the os and cervix by means of cauterizing agents, is so prominent that it deserves to fix our attention. The caustics employed are directed (1) to the surface of the os and cervix, or (2) to the parenchyma. They have also been classified as (1) mild, and (2) energetic caustics.

In follicular ulceration of the surface of the os and cervix, a strong

solution of *nitrate of silver* gives excellent results. The application produces a slight eschar, which is detached in five or six days, after which it may or may not be renewed.

When the ulcerated surface is red and softened with tumefaction of the cervix, the *tincture of iodine* is to be preferred on account of its resolvent properties; or, what in some respects is better, *iodoform* which is at once an energetic cicatrizant and a local anæsthetic.

Bleeding ulcerations, with a varicose aspect, will be happily modified by a solution of *perchloride of iron* at 30°. It should be repeated at the close of five or six days.

Obstinate ulcerations will sometimes yield in a satisfactory manner to application of a solution of *hydrate of chloral*.

1303. R. Chloralis, 2 grammes
Aquæ, 25 grammes.

The ulceration to be touched daily with this for some time.

When the ulcerations are swollen and fungous, a more potent caustic than those above mentioned is required. SCANONI used *pyroligneous acid*; Dr. GALLARD, *crystallized acetic acid*, or *carbolic acid*. The first mentioned is the least painful.

Pencils or *crayons* of nitrate of silver, sulphate of zinc, perchloride of iron, iodoform, or other substances, may often be advantageously employed. Those of tannin are to be prepared as follows:

1304. R. Tannin, 1 gramme
Pure glycerine, q. s.

Rub together and roll into two crayons each five centimetres in length.

The most suitable formula for crayons of the other ingredients mentioned is the following:

1305. R. Sulphate of zinc (or other agent),
Gelatine, āā 2½ grammes
Pure glycerine, gtt. v.

To make ten crayons of six centimetres each. Powder the gelatine and place in a capsule in a sand-bath. Add the glycerine and ten drops of water. Stir till melted and smooth. Add the zinc or other agent with a few drops of water if necessary. Mix carefully, then cool and mould rapidly into pencils.

In certain cases where there is simply morbid enlargement of the os, (as sometimes in chronic metritis,) without ulceration, this engorgement may often be reduced by inserting some *iodide of potassium* enclosed in a tampon of wadding. Placed in contact with the neck, this substance generally produces a slight ulceration which rapidly heals, and is followed by a diminution of the organ. After eight or ten days, it may be repeated.

In cases of vegetations and rebellious ulcerations, more potent agents are required. Of these *chromic acid* is ranked by some as one of the best. It produces a dry, yellowish eschar. The crystals are used, being applied directly against the part, until the whole of it is covered with the eschar. It is not uncommon for this application to be followed by vomiting and diarrhœa, and precautions must be taken that as little of it as possible be absorbed into the system.

Caustic potassa, *Canquoin's paste*, *Vienna paste*, and *Filhos' caustic*, are other powerful caustics occasionally applied. They should be used with great caution. *FILHOS'* caustic is a solid form of Vienna paste, and is more manageable than the latter. *Nitric acid* is convenient of application, and has furnished good results. The *acid nitrate of mercury* is apt to extend beyond the diseased structures, and it is said to leave troublesome cicatrices. It has, however, been especially recommended in syphilitic ulcerations of the os.

In that form of cervicitis accompanying chronic metritis, where the cervix is enlarged, infiltrated, softened, and generally more or less ulcerated, as well as in a later stage of the same morbid process, when the cervix is enlarged, thick and hardened, *actual cautery* will usually furnish the best results. This may be applied as the hot iron, the thermo-cautery, the galvano-cautery, the gas-cautery, or the cauterizing pencils. The application of the red-hot iron is not at all painful. It is followed by an eschar which is detached after eight or ten days, leaving a healthy granulating surface, and which is not followed by a contracting cicatrix. The iron should be nearly at a white heat in order to prevent the adherence of the tissues which takes place when it is at a dull red.

Of the other methods of cautery mentioned, the *cauterizing pencils* of M. BONNAFOND may be described. They are little cylinders made of powerful charcoal and nitre, as follows:

1306. R.	Nitrate of potassa,	2 grammes	
	Powdered wood charcoal,	30 "	
	Gum tragacanth,	10 "	M.

Or, as follows:

1307. R.	Nitrate of silver,	1 gramme	
	Wood charcoal,	28 "	
	Powdered acacia,	4 "	
	Water,	q. s.	M.

They are lighted at a candle and applied to the part; but as they

are at once extinguished by the application, they are suitable only when superficial eschars are desired.

Cauterization by *ignipuncture* has been advised in this form of cervicitis when very rebellious. Filiform cauteries are used, and are inserted into the tissues to the depth of four to eight millimetres. Four to six punctures are made, distributed over the lips of the os.

After the cautery has been applied, the vagina should be washed with cold water, and the patient keep her bed for the rest of the day.

PROF. J. MATTHEWS DUNCAN, M. D.*

This teacher is of opinion that what is popularly called "ulceration" is properly *chronic catarrh of the cervix*. In many slight cases, the mistake is made of ordering too strong vaginal injections or lotions. The following is more appropriate:

1308.	R.	Plumbi acetatis,	3 ^{ss}	
		Aquæ tepidæ,	3 viij.	M.

For an injection to be administered every night by the patient herself.

The same quantity of alum or zinc sulphate may be substituted for the lead. Cauterization by introducing the nitrate of silver into the cervix and turning it around, is the ordinary, but not the most successful treatment.

In severe cases, the best caustic is *zinc-alum*. Sticks of this, from one to one and a half inches long, are made by fusing together equal parts of sulphate of zinc and sulphate of alum, and running the mixture into moulds the size of a No. 6 or 7 bougie. The cervix is exposed and a sound is passed to find if the passage is clear and to expose its direction. Then the stick of zinc alum is introduced and left in the cervix. A plug of cotton or lint is placed in the upper part of the vagina to keep the stick from coming out and to receive the caustic that dissolves. After three hours, the plug is removed and the vagina well washed with tepid water. The caustic produces a yellowish-white slough, which after several days comes off, leaving in successful cases a surface which secretes healthy cervical mucus. This caustic is stronger than nitrate of silver.

In the severest cases still stronger caustics are required. The best is *caustic* potash applied so as to produce a slough in the thicker hypertrophied lip. Sometimes the actual cautery proves very efficacious.

*Lectures on Diseases of Women, 1880.

It is advisable not to go on treating indefinitely an obstinate case of chronic catarrh. If after two or three trials, each of which extends over several weeks, a cure is not effected, it is better to give up further meddling with the matter.

DR. L. DE SINETY.

Ulcerations depending on metritis, sometimes rapidly disappear under the influence of scarifications alone. Generally, however, topical treatment is necessary. In the choice of agents, the phase of the disease is to be considered. During the congestive period, nitrate of silver often acts injuriously. Dr. De Sinety prefers crystallized chromic acid diluted with an equal amount of water and used as follows: Carry the acid to the point to be cauterized on a little cotton fastened to the end of a small piece of wood. Take care that the quantity of the liquid is just sufficient not to flow beyond the space on which it is to act and immediately after applying it, give a full injection of water to remove any that remains. Other useful agents are perchloride of iron, tincture of iodine, iodoform, tannin, alum, chloral and creosote, as in the following formulas:

1309. R.	Chloralis, Aquæ,	℥j ℥j.	M.
Touch the ulcerations daily with this.			
1310. R.	Glycerinæ, Alcoholis, Creosoti,	℥vj ℥ij gtt. xv.	M.

DR. T. A. BUCKLER, OF BALTIMORE.

In that common form of enlargement of the vaginal portion of the uterus, with thickening, tumidity, redness, and often superficial ulceration of the lips surrounding the os tinæ, together with engorgement and enlargement of the muciparous follicles, just within the neck, and pouring out, as they always do in this condition, profuse secretion, or exudation, popularly called "whites" or *fluor albus*—this practitioner (*Monograph*, 1880,) never applies nitrate of silver. He has, times without number, carried a large bougie up to the fundus of the uterus, allowing it to remain in the cervical canal twelve, sixteen, or twenty-four hours, and generally with more satisfactory results than from any other single expedient, topical or general. The relief is attributed to overcoming contraction in the fibres of the constrictor cervicis muscle, releasing the venous circulation,

and thereby preventing retardation of blood and consequent engorgement. The original and continued cause having been removed by the bougie, he generally relieves existing engorgement by giving one or two Blancard's pills of iodide of iron after each meal; and when syrup of the iodide of iron can be had without free iodine in it, the following may be substituted for the pills:

1311. R. Syr. ferri iodidi, ℥ iiss
 Aquæ fol. aurantii, ℥ iiiss. M.
 Sig.—A teaspoonful after each meal, in water.

The muciparous follicles, he says, existing just within the ostiæ, and occupying the walls of the cervical canal for about an inch, are the sole and only sources of *fluor albus*. These follicles are often found enlarged and tumid, without other engorgement or trouble of any sort, in the tissues surrounding them. Signal relief is often derived from introducing a bougie and allowing it to remain a sufficient length of time in the cervical canal, thereby releasing the veins, and allowing their return circulation to pass through them unimpeded. The obstruction to venous flow being thus relieved, existing engorgement in the muciparous follicles may be resolved by giving the following:

1312. R. Hypophosphit. sodæ, āā
 Hypophosphit. calcis, ℥ iiij
 Hypophosphoric acid, q. s. ad sat.
 Aquæ destillatæ, ℥ vj. M.
 Sig.—Give a teaspoonful after each meal.

Pure phosphate of lime in the magma form, is much better to prescribe in doses of ten grains, thrice daily, provided we can be sure of having it furnished by the apothecary in proper assimilable form.

MECHANICAL TREATMENT.

T. GAILLARD THOMAS, M. D., NEW YORK.*

When eversion of the cervical mucous membrane is the result of injury, as in parturition, an operation is necessary. The edges of the fissure must be pared and approximated with deep sutures of silver wire.

A. J. C. SKENE, M. D., NEW YORK.

Some preparatory treatment is generally required, before the

* *Proceedings of Kings County Medical Society, June, 1878.*

operation can be performed. The cervix is usually found gaping, enlarged, eroded from pressure on the pelvic floor, and often in a state of cystic degeneration. In a bilateral laceration extending nearly, or quite, to the vaginal junction, the eversion of the parts is often so great as to require the removal of large portions of their surfaces before bringing them into apposition, or the tension on the sutures will be so strong as to cause them to cut into the tissues and prevent perfect union.

In these cases, about ten days before the final operation, bring the parts together, without any freshening of their surfaces, and confine them by means of a small piece of sheet lead on either side of the cervix, held in position by a silver suture passed continuously through both ends of the leads. Then tampon the vagina carefully with *marine lint*, which can be retained *in situ* for two or three days without becoming offensive, thereby protecting the surrounding parts from the chafing of the clamp. At the end of a week, remove the clamp. Three days later, operate.

The use of the marine lint tampon, above referred to, even without the clamp, is of service in reducing the abnormal condition of the lacerated cervix.

He prefers the ordinary silk suture, as it cuts the tissue much less than silver wire. This is easily tied by using CARROLL'S *knot ties*, or by passing a loop of the THOMAS *urette*, and making traction laterally with that, holding the other thread firmly in the fingers. For after-treatment, the less they are interfered with the better. Remove the tampon in forty-eight hours, and do not use the vaginal injection unless absolutely requisite.

TENTS FOR DILATING THE CERVIX.

The use of tents of any kind is not without danger. Serious maladies and death have at various times resulted from their insertion. Dr. T. GAILLARD THOMAS gives the following rules with regard to their employment:

Rule 1. In the introduction of a tent, no force whatever should be employed. Should that first essayed not pass the os internum easily, it should be withdrawn, and either bent so as to follow more accurately the course of the cervical canal, as ascertained by the probe, or exchanged for a smaller tent.

Rule 2. A tent should never, under any circumstances, be introduced at the physician's office, and the patient allowed to go home

with it in utero. Such practice is hazardous in the extreme. Even when introduced at the patient's home, she should at once be confined to the bed.

Rule 3. The practitioner should always investigate as to the previous existence of chronic pelvic peritonitis, one of the most common of the diseases of women. Should it have existed, tents should be carefully avoided.

Rule 4. A tent should not be allowed to remain in the uterus more than twenty-four hours; and, if it be compatible with the accomplishment of the desired result, it should be removed in twelve hours.

Rule 5. After the removal of a tent, the vagina should be washed out with an antiseptic fluid, and if any pain, chilling or discomfort follow the removal, opium should be freely administered and perfect rest enjoined.

Rule 6. After the removal of the tent, the patient should be kept in bed at least twenty-four hours, and never allowed to travel before the expiration of four or five days.

Dr. TILT lays stress on the importance of examining the patient with a speculum in full daylight, to be sure nothing is amiss with her pelvic organs. A tent should only be introduced every third or fourth day, and at some days removed from the menstrual epoch. If much irritation is produced, the dilatation should be suspended. Vaginal injections should be used with great care at this time, as severe uterine colic may result from the fluid entering the dilated os.

Dr. BEVERLY COLE, of San Francisco, states that most of the sponge tents sold, are carelessly prepared. Therefore he makes his own tents out of fine cup sponge, such as surgeons use. The sponge is dipped in melted wax, and then subjected to a very great pressure (which could best be secured by a letter-press) which forces all the superfluous wax out of the sponge, and flattens it out to a thin cake. It is necessary, in selecting the sponge employed, that it should be entirely free from all coral or other mineral impurities. After being pressed out in this way, the sponge can then be cut with the knife or scissors into any shape desired, care being taken to cut it in the direction of its long axis. In many instances it is very necessary to begin with a tent not larger than a knitting-needle. Before using, it should be provided with a thread by which it can be removed.

Dr. JAMES P. WHITE, (*Trans. of the Amer. Gyn. Soc.*, 1880,) insists very strenuously that the twine or wire used to withdraw a

sponge tent should run quite to the small or internal end, and should be securely fastened thereto; otherwise the tent is liable to part in the middle, and the inner portion slip into the uterine cavity.

It is remarked by Dr. W. GOODELL, that the danger of inserting tents increases with each introduction. Hence the importance of dilating the canal with one or at most two introductions. When sponge or laminaria is used, the cervix should be irrigated every few hours with a strong solution of table salt or of chloride of potash.

NOTES ON REMEDIES.

AGENTS APPLIED TO THE OS.

Acetum. For removing sanguinolent or albuminous discharges in cervicitis, Dr. JAMES P. WHITE, (*Trans. of the Amer. Gyn. Soc.*, 1880,) recommends common vinegar. It coagulates the albuminous secretion, is a good astringent, and does not discolor the surface to which it is applied. Dossils of cotton saturated with vinegar will be found exceedingly convenient.

Acidum Acetum, in crystals, is said to be but slightly painful and very efficient.

Acidum Bichloroaceticum has been recommended by SCHMIDT and URNER. It is obtained by the action of chlorine on hydrated acetic acid under the influence of the solar rays.

Acidum Carbolicum, in crystals, is an efficient agent, and as it is also a local anæsthetic, the pain is less prolonged than with the mineral acid. GALABIN considers it the most widely useful of all applications for the cervical canal. The vagina must be protected and well washed out after the application. It may be diluted with glycerine, 1 to 5 parts.

Acidum Chromicum is preferred by Dr. KÖEBERLE for the reasons given. It is also a favorite with some American practitioners. Dr. ATHILL says it is more irritating than nitric acid.

Acidum Nitricum is preferred to any other caustic by A. COURTY and others. Dr. ATHILL has especially advocated it in Great Britain.

Acidum Pyroligneum was used largely by SCANZONI and the Vienna school.

Alumen, in powder, or ointment, or strong solution, or as burnt alum, has been occasionally employed.

Antimonii Chloridum is an energetic caustic, but is of uncertain action.

Argentii Nitras has long been the most popular of all caustic applications to the os uteri. Dr. TILT observes: "I have no hesitation in saying it is the most valuable of all the agents that enable us to cure inflammatory affections of the reproductive mucous membrane." His usual

solution is gr. xl. to aquæ f. ʒj. He applies it every four or five days when the os is red and sensitive, as well as when ulceration is present.

Bismuthi Subnitras. Dr. A. COURTY (*Maladies de l'Uterus*, 1866,) considers this substance, insufflated upon the part, one of the most powerful modifiers of ulcerations of the os. It has also been very strongly recommended, made into a thick cream with glycerine, applied to ulcerations of the os. It may be conveniently introduced through a tube, and retained in place by a pledget of cotton.

Creosotum was formerly used, but carbolic acid has taken its place.

Cupri Sulphas is a favorite agent with the Swedish physicians. They claim it is curative, and not followed by troublesome sequelæ.

Ferri Chloridi Tinctura. For hemorrhage depending on a granular condition of the cervix, this is a valuable agent. It is best applied on a small roll of cotton saturated with it, another and larger roll wet with glycerine being placed outside of it. (ATTHILL.) They should not be left more than a few hours, or sloughing may ensue. ARAN applied to ulcers of the os, the following glutinous compound :

1313. R.	Tinct. ferri chloridi ether.,		
	Collodion,	āā	equal parts. M.

Ferri Subsulphas has been largely employed as a styptic, especially in the form of Monsell's solution.

Hydrargyri Nitras. The acid nitrate of mercury is well spoken of by TILT and other practitioners. It must be applied with considerable care, so as to avoid injuring other parts, and a solution of bicarbonate of soda should be at hand to neutralize it. On the other hand, ATTHILL never employs it, and A. COURTY (*Maladies de l'Uterus*, 1866,) formally condemns it as difficult of management and liable to be followed by severe mercurial poisoning.

Iodum. In ulcers of the os, iodine is not so effective as nitrate of silver (TILT), but when the latter disagrees, tincture of iodine is the best application. To the simple tincture, Dr. GOODELL prefers the saturated ethereal tincture.

Iodoformum is a soothing and healing application, principally objectionable from its odor and the unpleasant taste it imparts. The odor may be largely *disguised* by combining with it double the quantity of balsam of Peru.

Pix Liquida has been employed by BELL.

Potassa Fusa. This is principally used in the form of *potassa fusa cum calce*, which is of two strengths, known respectively as,
FILHOS' caustic :

1314. R.	Potassæ fusæ,	1 part.
	Calcis,	2 parts.
Melt together.		

BENNETT'S caustic :

1315. R. Potassæ fusæ, 2 parts
 Calcis, 1 part.
 Melt together.

Dr. TILT says that in obstinate cases of unhealthy condition of the lining membrane of the cervix, in highly irritable ulceration of the cervix with soft hypertrophy, in pseudo-membranous ulceration of the neck, and to establish an issue on the healthy mucous membrane covering a hard hypertrophied cervix, these preparations are exceedingly useful. Dr. ATTILL finds the caustic potash eminently useful in those cases where the os uteri is in a state of granular erosion.

Potassii Iodidum acts as a moderate caustic in certain cases.

Pyroligneum Acidum. Crude pyroligneous acid has been recommended as a local application to erosions of the os by SCANZONI, VEIT and SCHRÖDER.

Salicylicum Acidum. The following combination is praised by Dr. HENROT, (*Union Méd.*, 1880) :

1316. R. Acidi salicylici, aa 3iiss
 Pulveris camphoræ,
 Mix, and add, gtt. x
 Alcoholis, 3iiss-v. M.
 Unguenti petrolei,

This is stimulating and slightly caustic, and acts well in indurated ulcerations of the os.

Tannicum Acidum is frequently employed as a stimulating application. It may be made into a crayon by moistening with glycerine, rolling out, and drying.

Zinci Chloridum. The application of this agent is very painful.

Zinci Sulphas. In the more chronic stages of cervical endometritis, solid points of fused sulphate of zinc have been introduced by Dr. BRAXTON HICKS, and are often useful, but are liable to cause considerable pain and irritation, when any active hyperæmia is present.

UTERINE TENTS.

Althea. The root of the marshmallow has been employed as a tent.

Cloth. Tents made of cloth were introduced in 1871, by Dr. V. H. TALIAFERRO, of Georgia, (*Four. Gyn. Soc., Boston, Vol. V.*), and have been advantageously employed.

Corn-stalk Pith. In the *Transactions* of the Medical Association of Georgia, 1878, Dr. W. T. GOLDSMITH urges many reasons for the use of this substance for tents. Take a joint of dried corn-stalk : strip it of its cuticle, and compress the pith, slowly and firmly, between the

thumb and index-finger. By continued pressure, it is reduced to a fourth or a fifth of its original size. It has a dilating power equal to sea-tangle or sponge. The corn-stalk tent is of easy introduction. Its rigidity overcomes any slight resistance. Dr. GOLDSMITH has used this tent for the last seven years. He has not had a single accident from its use, although he has introduced the tents many hundreds of times. The advantages of this corn-stalk tent are that it dilates effectually, but not too rapidly. It is smooth soft, and can be removed without force. It produces no lacerations, abrasions, or irritation of the mucous membrane. It can be medicated with any substance as easily as the sponge or cloth tent. It is of vegetable origin, and hence does not become putrid and poisonous to the patient, and it may be retained, non-compressed, for days without injurious results, if no pain occurs.

Gentian Root. French physicians have used this occasionally. It does well as a dilating agent.

Ivory, which has been softened by exposure to acids, is recommended by some. In twenty-four hours it swells to double its first size.

Laminaria or Sea-Tangle. This aquatic plant swells, when moistened, to three times its size when dry. It has the advantage over sponge that it contains no animal matter, and emits no fœtor. When perforated from end to end as recommended by Dr. GREENHALGH, such tents dilate rapidly and also allow the fluids of the uterine cavity to escape. They cause, however, much severer pain than sponge, and run a danger of tearing a resisting os. Mr. TAIT disapproves of them for these reasons.

Slippery Elm Bark. This substance is praised by Dr. WILLIAM GOODELL as a material for tents. Though of less expansive power than laminaria or sponge, it may be left in longer, as it softens down, and becomes dissolved by the discharges. It is of especial value in cases requiring no very great dilatation, but a prolonged treatment, as in flexions.

Sponge. This is the substance preferred by many for tents. Its expansive power is considerable and it is easily adjusted to the size and shape of the neck. But it produces a fœtor which is but partially overcome by treatment with carbolic acid and irrigation of the vagina. TAIT prefers sponge tents, impregnated with oil of cloves, but adds that even with these there is some risk of infection, and to secure entire immunity, recommends that the tent be enclosed within an elastic capsule.

Tupelo. The root of the tupelo tree, *Nyssa multiflora*, has been advocated by Dr. G. E. SUSSDORF, of New York city. It is light smooth, and its power of absorption is said to be greater than that of sea-tangle.

OTHER MEASURES.

Galvanism. In ulcerated os with leucorrhœa, Dr. O. E. HERRICK, of Greenville, Michigan, writes to the *New York Medical Record*, 1879, extolling this line of treatment. He introduces a pessary made of a ring covered with rubber and supported by a Y-shaped support of twisted silver wire, held up by a perineal band. Outside, and held up by the waist-band, is a small plate of zinc, enclosed in a chamois-skin bag with a sponge moistened with vinegar. The zinc plate is united to the silver wire of the pessary by a copper wire, thus making a complete galvanic battery. In one patient, in thirty-six hours after the galvanic attachment was made, he found healthy granulations instead of the unhealthy ulcer; and the leucorrhœa had stopped almost entirely, which had not been the case for a year. In one week, there was neither ulceration nor leucorrhœa; he then removed the copper wire and zinc, but left the uterine supporter a week longer. The patient was discharged cured, and remained so after the removal of the apparatus.

Local Blood-letting. Prof. J. Y. SIMPSON says frequently where there is engorgement or hypertrophy, the abstraction of two or more ounces of blood greatly relieves the stress from which the patient is suffering, and aids in the beneficial results from other remedies. This may be effected by leeches applied to the cervix through the speculum, or by scarifying around the os with a tenotomy knife with a long stem. It is well to make the patient sit over a dish of hot water to favor the flow, and then apply a warm vaginal douche, taking care that the patient is not wetted and chilled during the process.

DISPLACEMENTS.

PROF. E. J. TILT, LONDON.

Displacements of the uterus would seldom require mechanical treatment, if the congestion and other affections were properly treated. It is bad practice to employ mechanical measures prior to the cure of inflammatory lesions. This, by diminishing enlargement, will likewise relieve displacement. The stem pessary will not be borne, when the cervical mucous membrane is inflamed. When the displacement is congenital or of long standing, the cure of the inflammation does not correct it, but through a tonic treatment, opium suppositories at night, astringent injections, and electricity, many are enabled to perform their household duties. Always make

light of displacements to the patient, as otherwise fright interferes with the cure.

Retroversion and anteversion depending greatly upon relaxation of the vagina, astringent injections prove of value, as strong solutions of alum, sulphate of zinc, or tannin. Aid is obtained by suppositories containing alum, iron-alum, tannin, or matico. A good plan is to enclose in cotton-wool a small lump of alum, the size of a hazel-nut, tie round it a string long enough to hang out of the vagina, then place the alum ball as high as possible in the vagina. The wool imbibes the fluids, the alum gradually dissolves and acts powerfully on the vaginal walls. Remove the wool next day and irrigate the vagina freely to remove the coagulated mucus, prior to a second application. Cold vaginal douches are often useful, applied twice a day, for fifteen or twenty minutes. Douching the loins, while the patient is perspiring from a vapor bath, often relieves the pains of displacements.

Prolonged repose is hurtful, though rest for a few hours daily in the recumbent posture, will diminish pain and congestion. Consider the periods of menstruation as seasons of disease, and enforce complete rest, with the use of hip-baths and large abdominal poultices. Parturition generally greatly modifies and even cures uterine displacements. They are then mechanically rectified, and the active nutrition furnishes sounder tissues. Hence, after parturition, in such cases, keep the patient on her back longer than usual, and employ twice daily, after the red lochia have ceased, astringent injections, and continue them for months.

When adequate improvement does not follow constitutional treatment, mechanical means may be employed. The womb may be placed at rest by a hypogastric bandage with a vertebral support. It takes off the pressure of the intestines. Prolapsus and procidentia may be greatly relieved by the styptics as above.

In case of complete prolapse, when the womb cannot be replaced, its volume may be diminished by scarifications and lead lotions, or, when necessary, by strapping it with strips of adhesive plaster until its size is reduced. Then, with the patient in the genu-pectoral position, the surgeon may force the womb back into the pelvis.

Globular pessaries of boxwood or vulcanized rubber are often useful, and may gradually be reduced in size, till they can be omitted. The air pessary will often give great relief, even though it does not cure the displacement.

All pessaries should be occasionally removed and cleansed.

A pessary made of rubber-covered watch-spring is easy of introduction, and tends to counteract the relaxation of the vaginal walls. A heavy, prolapsed womb is well supported by Coxeter's gutta-percha pessary, which resembles a funnel, the mouth covered with thin vulcanized rubber on which the womb rests. This membrane is pierced with holes to permit the secretions to drain off freely. Another by Coxeter, has a spring which distends a thin rubber cup which supports the womb; the lower end is fixed in the perineal band, so that the patient can remove or draw it aside. Bourjeaud's mushroom pessary is made of vulcanized rubber, and may be inflated by a tube after it is placed. When distended it is well calculated to support the neck of the womb in the depression in its upper part. It is secured by elastic bands fastened to an abdominal belt. It has two advantages—its size may be regulated, and it diminishes vaginal irritation.

In complete prolapsus, the tow-pessary may be employed. The vagina, after replacement, is packed with carded oakum, called "antiseptic marine lint," or with chloralum cotton-wool. The vagina is allowed a limited power of contraction, the pressure does not cause pain, and the pessary is not readily displaced, nor does it interfere with the functions of the surrounding organs. The plug should be replaced weekly, less being required each time. This is highly praised by Dr. COPEMAN, of Norwich, and Mr. MORGAN, of Litchfield.

Various plans have been proposed to narrow the vagina, and thus cause the womb to be retained.

Dr. MARION SIMS cuts off slips of mucous membrane at appropriate distances, and brings the cut surfaces together by silver sutures.

When old adhesions prevent the reposition of the womb, EDWARDS, of Denbigh, and others, propose its removal. In three-fourths of these cases, the operation has been followed by recovery.

For uterine flexions, Dr. GOODELL, of Philadelphia, introduces into the cervix a powerful dilator and forcibly dilates it, so as to crack the circular fibres. This is done under ether, and is claimed to be very successful.

THOS. ADDIS EMMET, M. D., NEW YORK.

In all versions, correct the displacement by mechanical means, and relieve the local cause of disease. The latter should consist in

the frequent and continued use of hot water injections, etc. This gives tone to the blood-vessels.

A retroverted uterus may be lifted into place by the use of the index-finger, and this is the most reliable means we can employ. It is attended with the least risk, and we are able to appreciate at once, in case of adhesions, the point and extent of resistance. The patient is to be placed on her back, the knees flexed, the hips drawn down to the edge of the couch. The index-finger is introduced into the vagina, and the point of a tenaculum hooked into the posterior lip within the os. By this, the organ is drawn toward the outlet so that the fundus may clear the promontory. This manipulation must be done with care, and if great pain is caused, it must be suspended. This manœuvre causes a still greater retroversion; to correct this, the perinæum is to be pressed firmly back, that the finger in the vagina may be passed up far behind the uterus so as to lift that organ. The fundus thus elevated, the cervix is to be suddenly carried in an arc of a circle, downward by means of a tenaculum. The version completed, the fundus can, by the finger, be pressed up against the uteri-sacral ligaments. These gape as the tension is relaxed by carrying the cervix backward, and the fundus slips between them. The finger is to be quickly passed from the posterior cul-de-sac against the anterior lip, the tenaculum withdrawn, and the womb thrown forward by passing the finger repeatedly down the anterior face of the uterus, so as to press the cervix downward and backward into the hollow of the sacrum. This operation, especially when it has caused much pain, should be followed by a hot water injection, and a glycerine dressing in the vagina, and several hours' rest.

On the subject of PESSARIES this author says: In adjusting a pessary great regard should be paid to the shape and size of the vagina, as scarcely two women could be benefited by the same instrument. The object is to restore the uterus to its proper place, and thus completely establish the circulation. Raise the uterus gently on the tip of the finger, until the patient expresses a feeling of relief from all feeling of fullness and bearing down. This is to be the guide. The pessary is then to be fitted so as to maintain the womb at this point. When the instrument fits properly, and has corrected the malposition, the patient should be unconscious of its presence. The largest number of cases will be relieved by some modification of Hodge's closed-lever pessary. All outside appli-

ances should, except in extreme cases, be avoided. The instrument should remain unchanged for months, while the parts are recovering their tone. Block tin rings made of an alloy of tin and lead in such proportions as to be easily moulded, and yet unyielding enough for the pessary to keep its shape, make the best. The support for the instrument will be the bottom of the posterior cul-de-sac. Hard rubber may also be used for the same purpose. To receive the full benefit, the vaginal outlet should not be too large, and the posterior cul-de-sac should be of a natural depth. "The fulcrum of this double lever rests on the bottom of the cul-de-sac, and in front against the posterior wall of the vagina. It should be curved at one extremity with reference to the shape of the cul-de-sac and posterior wall, and bent at the other end in the opposite direction with a lesser curve, so that it will be balanced, as it were, in the vagina." When the patient stands, the weight of the uterus will be thrown on the short lever forming the long curve in the posterior cul-de-sac. This causes the other end to rise and rest against the anterior wall of the vagina near the neck of the bladder. In the horizontal position, the weight is removed, and the long lever rests in the axis of the vagina. By thus adjusting itself, it cannot press so as to cut into the vaginal tissues.

The pubes should be avoided as the chief point of support, if possible; but this must be, when the anterior wall of the vagina is shortened by reason of an old retroversion, and where prolapse of the posterior wall occurs from perinæal laceration. An operation here becomes necessary. But for a temporary pessary, the only point of support is behind the symphysis. Under such circumstances, the instrument must be wider below, and with the greater curve at this end, that downward pressure may crowd the other extremity up behind the pubes. Here a depression must be made, to receive the neck of the bladder. The general laws for all pessaries are, that the instrument shall be small enough to admit the finger between it and the vaginal wall at any point while the patient is on her back; it must be large enough to support the uterus, and yet allow the vagina to regain its normal size. To get the length of a pessary, the patient being on her back, pass a whalebone stick or any blunt instrument along the index finger into the posterior cul-de-sac, and measure from behind the pubes. Next, to get the proper curve. In retroversion, a longer curve is needed than when there is only a prolapse. Here the upper part of the vagina is more dilated than

below, to which the instrument must conform, but not with so abrupt a curve as to press directly against the junction of the vagina, but beyond it, otherwise the circulation in the neck and womb, is hindered, and engorgement and erosion follow.

Where there is thickening of the posterior wall and retroversion, the curve must be such that it will pass far beyond into the cul-de-sac. This extremity must be rounded gradually, and not be made too narrow for its length. In cases where the thickened edges of the ligaments are very sensitive, this must be removed by hot water injections and the free application of iodine to the cul-de-sac every third or fourth day, and to take off the pressure, the recumbent position should be maintained. To allow of exercise, temporary support may be given by a cotton pessary, shaped like a large mushroom and placed in front of the cervix. This is made by pressing a square pledget of damp cotton between the hands, and folding the corners towards the centre until a ball is formed of the proper size; then holding the extremities between the fingers, a stem is made by wrapping cord between the ends and the ball portion. This, saturated with glycerine, will readily support a prolapse.

When the cul-de-sac is absent or very small, a straight or flat pessary is used, fitted to receive support behind the symphysis and put the vagina on the stretch so as to carry the uterine neck so far back as to make an anteversion. This must be watched lest it cut into the tissues. The shorter the vagina, the straighter must be the instrument, lest it rotate and remain across the axis of the canal. It must be wider in the middle than a curved one, in proportion to its length.

There is also a hollow rubber disk which is useful in place of the cotton pessary, where glycerine is not to be used. It is most useful where tenderness prevents the use of the ordinary form. To prevent pressure on the urethra or any tender point, a sulcus may be made by passing a small elastic band once or twice around its thickness. It may be placed in front or behind the uterus as occasion may demand. It prevents the sagging of the uterus in the pelvis. As rubber causes an offensive discharge by long retention, it is only temporary and should be removed at night, or when not needed, as in exercising.

Sponge must never be used as a pessary.

In *flexures* of the uterus, this author says, as soon as the true condition is appreciated, the intra-uterine stem will be abandoned, as

also the practice of dilating with steel sounds or sponge tents. The use of either is faulty in theory, without permanent benefit, and always dangerous. Where flexure is below the vaginal junction, surgical aid may be useful. The proper time is shortly after menstruation, and the incision should be made backward. In flexures of the body of the womb, hot water injections will give tone to the vessels. Iodine should be frequently applied to the canal, by the applicator bent to a curve corresponding to the flexure. When the uterus is enlarged, and the cervix hard, the acetic solution of cantharides should be applied to the neck after each period, to produce a blister. This relieves the congestion and acts revulsively, and also produces uterine contractions. Glycerine on cotton must be used daily, and ergot with tonics given internally. It must be continued for a long time, and not in doses to cause irritation of the stomach or marked uterine pains. When absorption of tissue has left a permanent deformity, and there is no cellulitis, it is well to open the passage in order to prevent dysmenorrhœa. The posterior lip is to be divided backward, and a triangular portion raised and removed. Though occasionally useful, yet it often fails and there is a return to the old condition.

Where *proidentia* exists to such a degree that the pessary cannot retain it, a surgical procedure becomes necessary. The object is to reduce the size of the vagina, which is accomplished by taking in a plait.

In obstinate cases, this author anteverts the uterus with the finger as the patient lies on her back, and the neck of the womb is crowded into the posterior cul-de-sac by a sponge probang held by an assistant. He then seeks a point about half an inch to either side of the cervix and a little behind the line of the anterior lip, which two points can be drawn together in front of the uterus by a tenaculum in each hand. The surfaces are denuded with a similar surface in front of the uterus. A needle armed with a silk loop is passed beneath each freshened surface and they are brought together and held by a single wire attached to the hoop; the folded surface is denuded below and the joints united by sutures.

DR. A. LAPTHORSI SMITH.

This writer says (*Journal of Gynecology*, Sept. 1891,) that he has been struck with the number of cases of retroversion with fixation, and the difficulty encountered in trying to establish a cure.

He believes that all of this suffering could be avoided, if accoucheurs would adopt the following rules:

First. To instruct their patients not to lie upon their backs more than a few minutes at a time, but to turn freely from side to side and occasionally entirely on the face.

Second. To give them full liberty to sit up to empty the bladder and bowels, and during the taking of food.

Third. To take care that the bladder does not become distended during the first few days; but to order the nurse to use the catheter every eight hours at least.

Fourth. To abandon the binder until involution is complete.

Fifth. To order every case a daily douche of plain or medicated hot water, so that in case of displacement, adhesions may not form.

Sixth. To keep the bowels in a soluble condition.

All these remarks apply with still greater emphasis in cases of miscarriage.

EUGENE C. GEHRUNG, M. D., ST. LOUIS,

Has invented a pessary which strongly resembles a Hodge closed pessary folded on itself. The two arches thus formed, rest against the anterior wall of the vagina; the lower one resting near or upon the os pubis, according to the degree of tonicity of the vagina, from which point it derives its anterior support.

The lower branches of the lateral curves, rest on each side of the vaginal aperture, in an antero-posterior direction on the vaginal surface of the perinæum. These prevent the instrument from rotating on the transverse and antero-posterior axis. An additional support is gained by the contact with the elastic vaginal walls and their close co-aptation to and insinuation between the arches and curves of the pessary. It rests within the vaginal grasp as a segment of a solid cylinder would rest in the grasp of an elastic one. Hence there is no obstruction of the vaginal space. The distance between the two arches varies from $1\frac{1}{4}$ to $1\frac{1}{2}$ inches. The antero-posterior and transverse diameters vary as the size of the instrument.

The pessary is introduced with the patient on her back, the knees well flexed and separated, and the curves so placed that the instrument shall rest in the position at first described.

Dr. GEHRUNG claims that few cases of *anteversion* can resist its action, when well fitted, unless firm adhesions confine the womb to the unnatural position. It has no fixed points of resistance, is sup-

ported everywhere, and allows free motion to the womb. It is simple in construction. It is inelastic, and hence its operation is under perfect control. Its material is such that it can readily be modified to suit. It does not interfere with marital relations. It is easily introduced and removed, and it causes no obstruction to the rectum, or bladder, or pressure anywhere.

The *anteflexion* pessary is the same pessary with the addition of a slightly excavated and inclined blade or shield. It supports the body of the womb, and compels the neck to retain its proper position and thus straightens it.

For *retroversion* and *latero-version*, the pessary is the Hodge pessary, with the addition of an arched blade or shield connecting the two lateral branches into a solid body for the distance of $1\frac{1}{4}$ inches. It acts by replacing the body and preventing the neck from following its motion to an abnormal position.

Dr. G. calls this form the *retroflexion* pessary, and sums up as follows: "This pessary combines the several qualities of a retroversion, retrolatero-version, retroflexion, and retrolatero-flexion pessary, and in addition, the quality of especially protecting the rectum from cervical compression, and the womb from being thrown into complete anteversion."

NON-MALIGNANT GROWTHS.

T. GAILLARD THOMAS, M. D., NEW YORK.

Polypi. The treatment is palliative or curative. The first is necessary where the conditions are unfavorable to the immediate attempt at a radical cure. If practicable, manipulation should be delayed until the tumor is expelled into the vagina. Use palliative treatment to replace the womb if displaced, and maintain it by a proper support, removing all pressure from above; keep the patient in bed at her periods, giving only cold and acid drinks, and administering *cannabis indica*, opium, gallic acid, ergot, or aromatic sulphuric acid. After the epoch has lasted four days, apply a tampon with solution of alum or tannin; keep the bowels regular and avoid fatigue; give nutritious food, bitter tonics, and nervines as they may be indicated, but avoid the use of iron, which increases the hemorrhagic tendency. At bed-time, during the interval, syringe the vagina with tepid water, and insert a suppository of tannin high up.

The curative treatment will be to remove or destroy the tumor. If the canal has been dilated by the polypus, the walls may be slit on each side nearly to the vaginal junction, and the tumor drawn out by a tenaculum. Or complete dilatation may be secured by means of tents, and the tumor may be aided in its exit by the use of ergot. If it become necessary to seek the pedicle near the fundus, it may be severed by excision, torsion, ligature, écrasement, or the galvano-caustic wire. If within reach of the knife or scissors, it may be divided. When higher up, Simpson's polyp tome comes into use. Small growths may be scraped off by the curette, or twisted off with the forceps. The ligature is objectionable; écrasement is better. For this, Hicks' wire rope écraseur is excellent. A hard, fibrous polypus, too large for its pedicle to be reached, may be cut away piecemeal by a curved scissors or Nelaton's forceps; or destroyed by deep incisions into its mass. When possible to encircle the pedicle with the galvano-caustic wire, this instrument is preferable. It cuts without force, and there is no hemorrhage.

THOMAS ADDIS EMMET, M. D., NEW YORK,

Has invented an écraseur for the removal of these growths. He preferred a chain to the wire, and finding that this would break, and as the curved écraseur did not always prevent this, he placed three joints at the end, so that it could be opened straight, or bent upon itself at a sharp angle. To facilitate the application of the chain, the ends were attached to two flat rods or bands, which could then be passed between the two halves of the ratchet portion, and secured at the handle by a spring catch. To aid in placing the chain close up around the base of the tumor, when situated high up, as at the fundus, he employs a copper sound, with a small circular eye at its end, or a flat piece of whalebone carefully rounded and smoothed, with an opening at the end. Through the eye or opening, a strand is passed with a loop, in which is included the chain. By this instrument, the chain is very readily carried up close around the point from which the mass springs.

This author regards the curved scissors as equally applicable where they can be employed for the removal of these growths. He also uses what he calls his "enucleator," a curved steel plate with a saw-edge placed over the end of the index finger, and held in place by a band. With this he separates the tissues when the other means cannot be employed. A rule to be observed is, that when the

pedicle is of small diameter, it may be cut close to the uterus; but if short and broad, the separation should be made near the tumor, lest a partial inversion or indentation be caused.

Where fibrous tumors are not pedunculated, he excites uterine contraction by traction on the growth toward the os uteri. This causes pedunculation by the crowding out of the tumor from its bed by muscular contraction behind. He prefers a cord with a slip-knot placed around the growth with which to make traction. It is of no importance as to the thinness of the uterine walls, as the contraction will close up the space as fast as the tumor is withdrawn. It is safer than enucleation, as it cannot be known how far the uterine tissue is involved. As a principle of practice, he would delay surgical interference as long as possible; but when the tumor presents at the os, the operation should be considered, for its appearance in the vagina will lead at once to the question of blood-poisoning. The operation once begun, it must be completed, as entailing least risk. The purpose is to excite uterine contraction, and this will be continued by traction on the tumor as it is removed piecemeal. The best means for removal is a pair of blunt-pointed scissors, curved on the flat. The *écraseur* is not fitted for it, as it does not excite the contractions, nor is the mass so rapidly removed. After having removed the portion which first filled the vagina, follow as far as possible the uterine canal. The after-treatment will be to wash out the cavity thoroughly with hot water, and then apply freely Churchhill's strong tincture of iodine. This arrests the oozing, and is a valuable antiseptic. Never introduce the subsulphate of iron into the cavity, as it is not astringent, and only fills it with coagulated blood, to decompose and cause blood-poisoning. After the iodine, a little cotton saturated with glycerine may be packed in, and we may even fill the cavity with cotton damped with a strong strong solution of alum. Remove this on the second day, and if bleeding has ceased, omit all dressings, and merely wash freely with warm water, and if there is decomposition, add a little brewer's yeast or carbolic acid.

Fibrous growths are to be removed when it can be done with a reasonable degree of safety, or their development arrested and the patient's strength preserved by checking the loss of blood. A cardinal rule is not to destroy the vitality of the tumor *in situ*, lest we add the risk of blood-poisoning. Hence, the action of hot water injections, iodine, and ergot, will be beneficial. The latter must be

used only in small and repeated doses, to excite moderate contraction. It is only to be used in large doses when the os is dilated and it is believed that the tumor is ready for removal. The watery extract of ergot, in the proportion of three parts to about seven of water and the same quantity of glycerine, may be used subcutaneously.

TREATMENT OF UTERINE TUMORS.

DR. ELGELMANN, OF KREUZNACH.

(*Edinburg Med. Jour.*, November, 1891.) This article furnishes conclusions from the treatment of four hundred and nine cases.

The tumors were classified under the headings "very large," reaching above the navel, "medium," size of a child's head, and "small;" not, as is usual, into *subserous*, *interparietal*, and *submucous*.

The methods employed were (1) *baths* with the addition of concentrated saline waters, (2) ergotine injections, and (3) electrolysis, after the methods of APOSTOLI. The exact procedures were not given.

LYONS, (*American Gynecological Journal*, November, 1891,) gives testimony of the benefit to be derived from applications of electricity in cases of fibroid having almost continuous hemorrhage for several months prior to the beginning of treatment.

The cases were also marked by anemia and general ability. His method of treatment was as follows: "APOSTOLI'S clay electrode was placed on the abdomen over the region of the tumor, and to this was fastened the negative pole of the battery. The APOSTOLI intra-uterine electrode was introduced, but could only be passed in some cases to the internal os, and to this was passed the other pole of the battery."

The strength of the current did not exceed fifty-five milliamperes, and was continued for about three minutes each time.

Applications were made twice a week for six weeks. Result—metrorrhagia controlled, even after the first application, the other conditions rapidly improved and complete cure followed.

J. SCHNECK, (*Medical Age*, April, 1842,) gives the histories of several cases of fibroid treated by injections of ergot into the substance of the tumor, with satisfactory results. He uses a half drachm of a good fluid extract, introduced by means of a strong

hypodermic syringe with a long needle. The center of the tumor is injected as nearly as possible. In a few instances, a slight chill was noticed after the treatment, which only lasted a short time. The injections were made once a week, or not oftener than once every five days.

DR. L. DE SINETY.

The radical cure is of course the removal of the tumor; but as this is often not attainable, we must have recourse to symptomatic treatment. This is principally to be directed against the metrorrhagia. The most available means are either cold applications on the abdomen or else protracted vaginal irrigations. Some employ the latter hot, but this author prefers them cold. Astringent substances, as tannin or perchloride of iron, may be added. If the hemorrhage is very abundant, the tampon must be applied, and compression of the abdominal aorta. Occasionally, the hemorrhage ceases after deep incisions at the cervical orifice. This is to be explained by the diminished congestion of the tissues thus brought about. Dilatation of the neck acts in the same way.

Intra-uterine injections of astringents are dangerous, and should not be resorted to.

The *ergot of rye* is the most efficient in hemorrhage from fibrous bodies. It may be administered by the mouth or subcutaneously. The combination he prefers, is the following for a *hypodermic injection of ergotin*:

1317. R.	Ergotinæ (Bonjean's),	gr. xxx	
	Aquæ,		
	Glycerinæ puræ,	āā	f. 3 ss. M.

Twenty drops every day, or every other day.

If care is taken to inject in the cellular tissue, and not in the dermis, there is little danger of accidents.

Of all the means alleged to favor dispersion of fibrous tumors, *ergot* is the only one on which this doctor places any dependence.

For the relief of periodically recurrent pains, due to these tumors, local bleedings, together with narcotics, are indicated. Sometimes when the pains arise from pressure of the mass on nerve trunks, a well-fitting pessary will lift the weight and give relief, or a hypogastric belt, accurately adjusted, will often answer.

Fibroid Tumors. From numerous sources, lately, the assertion has been made that interstitial fibroid tumor of the uterus can be

treated hypodermically by the aqueous solution of *ergot*, with eminently more satisfactory results than by any other mode of treatment, or by operation.

1318. R. Ergotinæ (Bonjean's),
Glycerinæ,
Aque.

3j
f. 3j
f. 3j.

M.

Inject twelve drops daily, hypodermically.

Dr. BYFORD prefers Squibb's fluid extract to any other form of ergot, and Dr. ATTHILL recommends the omission of the glycerine, and prefers as solution of one part of the extractum ergotæ liquidum, (*British Pharmacopæia*,) in two of water, injecting fifteen or twenty minims of this each time. He always inserts the needle into the gluteus muscle, making it penetrate to the depth of more than an inch.

Dr. J. W. WALKER, of Indiana, has reported success from the use of the ergot of maize, the *ustilago maidis*. (*New Prepar.*, Jan., 1878.)

In an article in the *Chicago Medical Journal and Examiner*, Oct., 1879, Dr. BYFORD adds some further directions on the ergot treatment. The mode of administration should be governed by the objects to be attained. If we desire to cause the painless absorption of the tumor, the doses ought to be moderate in size, and not too frequently administered. HILDEBRANDT administered by hypodermic injection, a preparation in quantities which represented from fifteen to twenty grains of the crude drug once daily, or once every other day; and it will often be sufficient once a week. If we desire to have the tumor expelled, we should administer full and increasing doses, often repeated, and continued until the object is attained.

It will sometimes be necessary to vary the quantity and times of giving it, to suit the susceptibility of the patient; less or more, according to the amount of pain caused by it.

It is not essential to give it hypodermically, although when it does not produce much inconvenience, this is a very efficacious method; it may be given by the mouth, in suppositories, per rectum, etc.

When we administer ergot for the cure of fibrous tumors of the uterus, the beneficial action of the drug will depend upon the degree of development of the fibres of the uterus, and the position of the tumor with reference to the serous or mucous surface. The nearer the mucous surface, the better the effects. If the tumor is very near

the lining membrane, we may hope for its expulsion *en masse*, or by disintegration.

We can often select the cases in which good results may be expected. There are four conditions which are usually reliable for this purpose. They are, smoothness of contour, hemorrhage, lengthened uterine cavity, and elasticity. A smooth, round tumor denotes, for the most part, uniform textural development; hemorrhage, a certain proximity to the mucous membrane; a lengthened cavity, great increase in the length and strength of the fibres; and elasticity assures us of the fact that cartilaginous or calcareous degeneration has not begun in the tumor.

An even, nodulated tumor may be composed of many separate solid masses. These displace and prevent the growth of the fibres to such an extent as to render contractions inefficient. When hemorrhage is not present, the tumor is probably near the serous surface, and consequently not surrounded by fibres.

Uterine Polypi. *Chloride of calcium*, once popular as a remedy for *goitre*, has recently been advocated by various Irish physicians, as efficient in bringing about the expulsion of uterine polypi, (*Irish Hospital Gazette*, Sept. 15th, 1874.) The formula is:

1319. R.	Liquoris calcii chloridi,	f. 3iv	
	Tincturæ ferri chloridi,		
	Spiritus chloroformi,	āā	f. 3j
	Tincturæ aurantii,		f. 3ij
	Infusi calumbæ,		f. 3vij. M.

Two tablespoonfuls three times a day.

These polypi can also, in many instances, be expelled by the administration of ergot, either by the mouth or subcutaneously. In the hemorrhage which accompanies these growths, perhaps the best injection is a solution of subsulphate of iron, as follows:

1320. R.	Liquoris ferri subsulphatis,	f. 3 ss	
	Aquæ,	f. 3ij.	M.

To be used for intra-uterine injections.

This strength cannot be exceeded with safety, and frequently one-half the amount of the salt will be sufficient.

Prof. JONES, of the Medical College of Georgia, and other Southern physicians, have claimed that the free administration of *muriate of ammonia* brings about the dissolution of fibroid tumors of the womb, hypertrophic contractions of the uterine walls, and allied troubles. It may be alternated with ergot.

In *coxcomb granulations* of the os, the best application is strong *cider vinegar*, or crude *acetic acid*. It may be poured into a speculum and allowed to cover the diseased portion for about five minutes. This should be repeated every other day. Nitrate of silver is liable to excite hemorrhage if applied to this form of erosion.

In simple ulceration of the os much good often follows the use of *iodo-tannin* :

1321.	R.	Iodi,	3j	
		Acidi tannici,	f. 3j	
		Aquæ,	Oj.	M.

Filter and evaporate to $\frac{3}{4}$ iv. To be applied to the ulcerated surface.

Or, for extemporaneous use :

1322.	R.	Tincturæ iodi,		
		Tincturæ gallæ,	āā	f. $\frac{3}{4}$ ss. M.

For local use.

J. T. EVERETT, M. D., (*American Journal of Obstetrics*, January, 1878), concludes, from his notes of cases, that :

1st. A judicious use of the faradic current is as certain and powerful to produce uterine contractions as ergot.

2d. It is more easily controlled.

3d. It does not disturb nutrition, or any of the secretions, nor does it interfere with digestion.

4th. It does not induce pain in distant organs, and is not followed by cephalic disturbance or nervous shock.

5th. It does not give rise to inflammations, or produce other local injuries.

Dr. ROBERT BELL, London, reports in the *Lancet*, Feb., 1879, several cases successfully treated with ergotine suppositories. These contained four grains each, and were inserted each night, resulting in the expulsion of the tumor.

F. A. GALLOIS, M. D., PARIS.

1323.	R.	Morphiæ muriatis,	3j.-ij	
		Sacchari,	gr. iv	
		Ceræ albæ,	3j	
		Butyri cacao,	3 ss.	M.

Melt the cocoa butter and wax over a slow fire, incorporate the sugar and morphia, carefully triturated together, and when the mixture is on the point of forming a mass, run it into four horns of paper, and allow it to cool.

These vaginal suppositories are useful in painful affections of the uterus, rectum, and bladder.

NOTES ON REMEDIES.

Ammonii Murias. Both Drs. W. L. ATLEE and E. R. PEASLEE have witnessed disappearance of uterine polypoids from the long-continued administration of this agent, gr. x., thrice daily. It is best given in the form of compressed pills.

Calcii Chloridum. This was recommended by Dr. MCCLINTOCK. Dr. TILT gives gr. x. twice daily. He remarks that its effects are more positive after the change of life, and adds the caution that its long-continued exhibition has been known to cause arcus senilis and other evidences of arterial degeneration.

Cannabis Indica and

Digitalis, as anemians of the reproductive organs, have some claims to consideration as checking the development of new growths.

Ergota. The exhibition of this may be either (1) by the mouth; (2) by the hypodermic injection; (3) by suppositories. When given by the mouth, GOODELL believes its permanent effect is enhanced by combination with iodide of potassium or ammonium chloride. The os should be dilated at the same time. Prof. HILDEBRANDT proposed daily hypodermic injections of the aqueous extract under the skin around the umbilicus. He uses:

1324.	R.	Ergotinæ,	6 parts	
		Glycerinæ,		
		Aquæ,	āā 15 parts.	M.

Successful cases have been reported in Philadelphia by this means, one by Dr. W. V. KEATING, who uses:

1325.	R.	Ergotinæ,	gr. xlv	
		Glycerinæ,		
		Aquæ,	āā ʒ cv.	M.

Prof. JOHN ASHURST, Jr., employs:

1326.	R.	Ext. ergotæ fluidæ,	f. ʒ iss	
		Glycerinæ,	f. ʒ j	
		Aquæ,	f. ʒ ij.	M.

Of either of these ʒ xx is a sufficient injection: the nozzle of the syringe should be carried down to the muscular walls of the abdomen in order to avoid the formation of abscesses. Rectal and vaginal suppositories of about gr. x each of the solid extract are used by some. The use of ergot is not wholly without danger, as some persons are greatly nauseated by it, have headache, etc. (GOODELL, *Trans. Med. Soc. Pa.*, 1880.)

Ferrum in various forms may be advantageously used to combat the anæmia. GOODELL combines it with ergot.

Gallicum Acidum stands next to ergot as a hemostatic in polypoid hemorrhages (GOODELL.)

Hydrargyri Biniodum. GOODELL records the marked diminution of a very large fibroid after long-continued frictions with an ointment composed of gr. viij of the mercuric biniodide to lard $\frac{3}{4}$ ss.

Hydrargyri Chloridum Corrosivum. Drs. T. M. MADDEN and ROUTH, of London, report cases where this agent appears to have diminished uterine polypoid growths in a marked degree. (*Half-Yearly Compendium*, July, 1874.)

Iodum. In the medical treatment of uterine polypi, Dr. T. M. MADDEN states that he has found the long-continued use of small doses of tincture of iodine serviceable.

Potassii Bromidum is spoken of with decided favor by SIMPSON and GALABIN, but doubtfully by GOODELL. It should be continued for months in moderately full doses.

Potassii Iodidum has a certain amount of testimony in its favor, for reducing uterine polypoids. GOODELL combines it with ergot.

Sclerotic and Sclerotinic acids have been employed for injection into the substance of fibroids. Dr. JOHN WILLIAMS, of London, has reported two cases in which the former promptly checked the hemorrhage and reduced the tumor.

Sulphuricum Acidum. In the bleeding from uterine fibroids, GOODELL recommends:

1327. R.	Quinice sulphatis,	gr. ij	
	Acidi sulphurici aromatici,	gtt. xx	
	Aquæ,	q. s.	M.

For one dose every two hours.

Ustilago Maidis, the ergot of maize, is said to act similarly to that of rye.

Vinca Major is praised by Mr. SPENCER WELLS, as an efficient agent to combat the anæmia and debility following hemorrhagic tumors. An effusion of $\frac{3}{4}$ ij of the leaves to f. $\frac{3}{4}$ xx of boiling water, f. $\frac{3}{4}$ ij every three or four hours: or, f. $\frac{3}{4}$ j of the fluid extract, are the proper doses.

OTHER MEASURES.

Baths, containing bromine and iodine, taken in connection with the internal administration of these agents, are commended by GALABIN.

Electrolysis has been highly lauded by some authorities. Its claims are not yet made out.

Galvanism. The constant galvanic current has caused in some instances retrogressive changes in fibroid uterine tumors. GOODELL speaks of it as an agent from which, in the future, much may be expected.

Leeches. Dr. TILT observes that even bad cases of uterine fibroids may be greatly improved by hygiene, by saline purgatives, and by the application to the cervix of two or three leeches, just before menstruation.

Mineral Waters, especially those of Kreuznach and Woodhall Spa, containing bromine or iodine, are believed to be valuable. Prof. A. R. SIMPSON says: "I have seen patients who were suffering from such tumors in whom the symptoms were relieved, and in whom the growth of a previously increasing tumor was arrested, if the bulk was not immediately diminished. These mineral waters seem to me to exert some portion of their influence by acting as sedatives to the sexual organs, lessening the activity of the circulation in them, and so reducing the nutritional activity."

Pressure by a firm, broad, elastic bandage, retained by a perineal strap, will give great relief in some cases.

MALIGNANT GROWTHS.

WM. GOODELL, OF PHILADELPHIA.

This authority, (*Medical News*, December 5, 1891,) states that in uterine cancer, when the vagina and broad ligaments have not become involved, or the uterus fixed by adhesions, removal of the womb is an entirely satisfactory operation.

With proper attention to technique, the writer is convinced that vaginal hysterectomy for cancer "far surpassed in its remote and permanent success, not only all other operations for cancer of the womb, but also all operations for cancer in other parts of the body."

He first cures the cervix, then sears it by means of the Paquelin cautery. The cavity formed, is then packed with iodoform gauze, and the lips are sewed together to prevent contamination of the peritoneum. The vagina is next irrigated with a 1-1000 solution of mercuric chloride. The cervix uteri is dragged downward and forward, and Douglas's pouch opened. Quilted sutures of catgut are passed, uniting the edge of the peritoneum to that of the posterior vaginal wall, and, as the incision is prolonged on either side up to the broad ligament, additional sutures are put in to prevent stripping off of the peritoneum and to check hemorrhage.

A roll of iodoform gauze is packed into the pelvic opening to protect the intestines.

This roll has a knotted string attached to distinguish it from the other ligatures.

By now dragging the cervix downward and backward, a transverse incision is made above the os, and the bladder is stripped off, until the peritoneum is reached. After opening this, quilted catgut sutures are used as before. Successive portions of the broad ligament are tied, (by using two aneurism-needles, one curved to the right and the other to the left,) and cut off from the womb. The delivery of the womb is easily accomplished by bringing the fundus through either the posterior or the anterior vaginal incision.

If possible, the ovaries and tubes should be removed, for fear of their containing cancer-germs. The iodoform tampon is now removed from the pelvic cavity, the long sutures are cut off, and the stump of either side brought to a level with the opening in the vaginal roof, and secured to the corresponding extremity of the incision. For drainage, a strip of iodoform gauze is packed into the pelvic cavity through the small opening in the vaginal roof, and more gauze loosely packed in the vagina. The bowels are moved about the third day, following which, both pieces of gauze are removed. Vaginal douches should not be used for a week for fear of disturbing union. Catgut ligatures are much preferred to silk.

REED, (*Four. of the American Medical Association*, July 11, 1891,) thinks that removal or amputation of the cervix, is unnecessary in the majority of cases. He has used the following treatment with success: Once a week the sharp curette is used, followed by an application of pure chromic acid. He prepared a swab of absorbent cotton, as large as would pass into the cervical canal.

After he had rapidly reamed it out with the curette, and on withdrawing the latter, he immediately dipped the swab in water, then into the dry chromic acid, and carried it as far as possible into the cervix and cavity, and held it there until the hissing and smoke ceased: then withdrew the swab, packed the cervix with cotton saturated with the pure persulphate, which was directed to be removed, in three or four days, by means of a string which was attached for that purpose.

There was great hemorrhage from the use of the curette, but the chromic acid stopped it almost immediately. This treatment was continued for several months, and apparently worked a cure.

PROF. GRAILY HEWITT, M. D., LONDON.

This author regards amputation of the cervix in cancrroid of the os, as valuable. It arrests bleeding and exhaustive discharges. He prefers the *écraseur*, or the scissors. He then applies perchloride of iron in glycerine on lint to the cut surface, and plugs the vagina with wetted wool. Hemorrhage is to be checked by ice water injections into the vagina and rectum, perchloride of iron or tannin, the actual cautery, and plugging the vagina. Sir J. Y. SIMPSON extols the use of a saturated solution of perchloride of iron in glycerine by means of a sponge to the surface. Tannin in fine powder, or tannic acid, may be applied through a tube or in form of a pessary. Cauliflower excrescences may be broken off, and tincture of iron injected into the mass.

Dr. HICKS found a saturated solution of alum, holding in suspension tannic acid, applied daily, very effectual. A sponge dipped in strong solution of nitrate of silver, is equally valuable. To remove the offensive discharges, wash out frequently with solutions of disinfectants. For the pain, use opium, etc. It is found most effectual in the form of a lavement. The application of carbonic acid gas to the surface of the sore has been suggested. An ordinary quart bottle is used, with an elastic tube fitted to the cork. Eight drachms of carbonate of soda, and six of tartaric acid, are dissolved in water in the bottle, and the gas is generated. The vapor of chloroform may be mixed with it. Nutrition is important; milk is a valuable article of diet. The urinary organs often require relief. For irritability of the bladder, Vichy water, uva ursi, or pareira, with a little liquor potassæ, are useful. Sir H. THOMPSON suggests *tritium repens*.

T. GAILLARD THOMAS, M. D., NEW YORK,

Has never seen any benefit from the use of caustics in true cancer. He checks hemorrhage by the styptics already mentioned, but prefers for this purpose the careful use of caustics so as to produce only a superficial slough, and thus temporarily seal the vessels. Every two or three weeks, after cleansing with cold water, touch the surface lightly by the actual cautery, acid nitrate of mercury, or pure nitric acid. Relieve pain by opiates, and in many cases chloral will be found an excellent substitute or alternate for opium. Correct fœtor by the usual lotions of carbolic acid, one to two drachms to the pint, or the same proportion of liq. sodæ chlorinatæ, or one

drachm of powdered subsulphate of iron to the pint, or a weak solution of iodide of lead. Keep up strength by use of milk, beef-tea, etc. Use iron freely to repair damages, and quinine as a tonic roborant and an excellent remedy for the neuralgic pains.

In *epithelial* cancer, the disease may be checked, if not cured, by the entire removal of the diseased portion. If amputation be not advisable, cauterization should be performed so deeply as to destroy the surfaces by means of the cautery, potassa cum calce, or the acid nitrate of mercury. This will at least relieve pain, arrest hemorrhage, and restrain the discharges. He applies the potassa cum calce in the proportion of two parts of lime to one of caustic potassa.

PROF. JOHN CLAY, OF BIRMINGHAM.

This writer announced in the *Lancet*, March 27th, 1880, a new cure for cancer of the generative organs, which attracted general attention, and has been reported on with some apparently favorable results. His original prescription is:

1328. R.	Chian turpentine,	gr. vj	
	Flowers of sulphur,	gr. iv.	M.
Make two pills; to be taken every four hours.			

No change was made in the diet or occupation, and no opiates were used. He says: "It is a most efficient anodyne, causing an entire cessation of pain in a few days, and far more effectual than any sedative I have ever given."

THOMAS ADDIS EMMET, M. D., NEW YORK.

This author, in cancer of the uterus, urges to operate without delay. When limited to the cervix, the scissors or knife is best with which to amputate, and by all means, if it can be done, get into healthy tissue. Healing the cut surface by granulation, is liable to act adversely, by causing a renewal of the disease. It is better to cover the stump by sliding the vaginal tissue over it, and secure the edges of the flaps with sutures. Where the disease has advanced too far for amputation, the actual cautery must be used. All the diseased tissue is to be scraped away down to a healthy surface if possible, and then the cautery applied over the whole raw surface. The best is the thermo-cautery of PAQUELIN. The platina is kept constantly at a white heat, by forcing atmospheric air into the midst of a flame of benzine vapor. Next cover the surface with a thick

pad saturated with glycerine, and a tampon over it, if bleeding seems likely to occur. Let the pad be detached by suppuration. When this occurs, keep the vagina clean. Solution of thymol will no doubt be useful to correct the odor. To check the bleeding, should it occur, use a saturated solution of alum. Always use these solutions at a high temperature. *Iodoform*, one drachm to an ounce of lard, will relieve pain, correct fœtor, and diminish the diseased mass.

STERILITY AND ANAPHRODISIA.

These are separate conditions; the former referring to infertility following the sexual act; the latter to the absence of the subjective and characteristic nervous sensations which constitute the sexual orgasm. As both conditions may depend on a great variety of causes, these must in all cases be carefully sought out.

The causes of sterility are defined by

T. GAILLARD THOMAS, M. D., NEW YORK,

To be—

1st. Causes preventing the entrance of the semen into the uterus, absence or closure of the vagina or uterus by an obturator hymen, atresia, conical os, polypi, etc.

2d. Causes preventing the production of a healthy ovule, as ovaritis, cellulitis, etc.

3d. Causes preventing the passage of the ovule into the uterus, as stricture or obliteration of the fallopian tubes.

4th. Causes destroying the vitality of the semen or preventing the fixation of the ovum, as endometritis, membranous dysmenorrhœa, menorrhagia, abnormal growths, etc.

Dr. THOMAS adds:

"In spite of the fact that we have at our disposal many valuable resources for the removal of the causes which create sterility, were I asked to mention the part of the field of gynecology which yielded me the least satisfaction and the greatest disappointment, I should cite this."

Where any obstacle is present, the proper surgical operation may be performed, as imperforate hymen, atresia vaginæ, occlusion of

the womb in any way. The affection is a symptom only to be reached through the malady causing it.

ELY VAN DE WARKER, M. D., NEW YORK.

This writer, in a paper on anaphrodisia, or, as he terms it, "impotency" in women, (*Am. Jour. Obstetrics*, Jan., 1878.) sums up the causes and divides them into three groups:

I.—MENTAL, subdivided into:

- a.* Congenital psychical defects.
- b.* Temporary mental conditions.
- c.* Sexual incompatibility.

II.—GENERAL PHYSICAL CAUSES.

- a.* Debility resulting from constitutional and other diseases not sexual.
- b.* General defective development.
- c.* Lactation.

III.—CONDITIONS OF THE SEXUAL ORGANS AND NEAR PARTS.

- a.* Defective development and result of injury.
- b.* Dyspareunia, (BARNES), resulting from (1) uterine displacement; (2) hyperæmia of the uterine body; (3) ovarian inflammation or congestion; (4) colpitis either simple or specific; (5) spasmodic contraction of the vagina, (vaginismus, SIMS); (6) vascular tubercles of meatus urina-rius; (7) diseases of the rectum, as fistula, fissure, or inflamed piles or ulcers.
- c.* Deranged nervous system from uterine displacements and other chronic uterine diseases, and debility from exhausting discharges and chronic uterine diseases.
- d.* Morbid growths.
- e.* Delayed or arrested menstruation.

The treatment of these conditions should, of course, be in the main etiological.

GRAILY HEWITT, M. D., LONDON.

This author gives as causes of this condition, abnormal conditions of the hymen; narrowness or partial closure of the ostium vaginae,

or vaginal canal; tumors interfering with intercourse, as an enlarged clitoris; spasms of the ostium vaginæ; absence or imperfection of the uterus, chronic hypertrophy, closure of the os like a valve, one lip being larger than the other, flexions, etc.; diseases of the ovaries; altered conditions of the fallopian tubes; ill-timed sexual intercourse, as women have a greater aptitude to conceive immediately after menstruation has ceased—this is the best time for intercourse; masturbation; too frequent intercourse, and diseases of the rectum.

Leucorrhœa, when alkaline or acid to excess, would cause sterility.

Sexual frigidity cannot be regarded as causing barrenness, as the reverse is constantly seen in practice. General debility and anæmia, but especially the opposite, overfeeding and luxurious habits, are particularly liable to interfere with conception. The fecundity of the human race is diminished by the life prevalent among the rich, and augmented by the habits and spare diet of the poor, in the proportion of six to one. To ascertain the cause of sterility, it is necessary to examine into the history and antecedents, the manner of menstruation, and the general bodily health. The cure depends upon the removal of the cause, if this be possible.

PROF. DR. MAYRHOFER, OF VIENNA.*

When a physician is consulted in reference to the sterility of a marriage, he should first satisfy himself whether the man or the woman is at fault. Contrary to the general opinion, in a large proportion of cases (about one-fourth of the whole,) it lies with the male. It must be remembered that he may be capable of vigorous coition, and yet incapable of impregnating. (Azoöspermia.)

The second inquiry is whether the woman has ever been pregnant, and whether infertility is not the result of constant aborting.

If this is the case, the chances of relieving her are better. But here again it is often the fault of the husband. It has been abundantly proven that men who have suffered from constitutional syphilis, suffer such loss of vigor in the semen that their impregnations abort.

The most common cause of an inability to conceive is found in previous existing inflammatory affections of the uterus. The case is favorable when on examination the vaginal portion is discovered

* *Handbuch der Frauenkrankheiten*, edited by Billroth, part II.

to be conical in shape and with a contracted os. Here the operation recommended by SIMS can be performed with a fair probability of restoring the fertility.

Inflammatory processes complicated with flexions or versions, also lead to sterility. The displacement is to be remedied, and this, if required, followed by discission of the os.

One source of sterility may often be found in the sexual relations. When these are quite frequent, there is not only less liability to conception, but greater chances of early abortion. The popular proverb "No grass grows on a well-trodden path" applies here. Women of cold natures, averse to intercourse, bear more children than those of ardent passions. Prostitutes rarely conceive. The rare indulgence which some married couples practice in order to avoid too large a family, actually favors child-bearing. Hence, when children are wished, strict moderation in coitus should be enjoined.

Experiments prove that acid fluids are very destructive to the spermatozooids. Hence, when the vaginal mucous discharge is acid, especially if it is also abundant, this may lead to infertility. The remedy here is to employ an alkaline lotion, (one or two per cent. of caustic potash in distilled water,) just before coitus.

Some women say that the ejaculation of the male immediately flows from the vagina. It is hardly possible that the whole of it can escape in this manner. But to such the old advice can be given that coition be conducted in the knee-elbow position.

When on examination of the canal of the os, it is found narrow and closed with a plug of tenacious mucus, it is possible that this obstruction prevents the entrance of the sperm into the uterine cavity. A simple and harmless means of remedying this is for the woman to introduce into the vagina and against the os a sponge dampened with glycerine and retained by a string for withdrawing it. In a few hours this stimulates the uterine secretions, and frees the canal of the cervix from obstructions.

Discission and *amputation* of the os for sterility are by no means sure remedies; so far, only a small percentage of success has followed their employment. Undoubtedly too much has been expected from them. It is better to precede them with *cauterization* of the os, a much simpler procedure, which alone is sometimes sufficient.

That *chronic cervical endometritis* is a frequently overlooked cause of abortion and consequent sterility, has been pointed out by Dr. ARTHUR W. EDIS. (*British Medical Journal*, Nov., 1878.)

On examination *per vaginam*, the cervix may be found to be apparently healthy, no roughness nor any unusual condition exciting attention. In other instances, the cervix is found to be more bulky than normal, the os puffy and patulous, the lining mucous membrane being granular. On passing a speculum, however, whether the cervix be normal in appearance or otherwise, we shall generally find exuding from the os uteri, a quantity of glairy tenacious mucus, like unboiled white of egg, which is with considerable difficulty removed from the cervical canal.

This condition not infrequently ensues shortly after marriage, and sterility is an almost invariable result; but should conception occur, abortion almost invariably ensues within the first few months, and, unless the patient be properly treated, much subsequent uterine disturbance is sure to follow.

Where the external os is naturally very small and circular, it may be necessary to divide it crucially, or even to slit up the cervix for half an inch or so, in order to prevent the tenacious discharge from accumulating in the cervical canal.

His belief is that many cases of sterility, where the difficulty is overcome by free division of the cervix with the metrotome, are benefited as much by the depletion which ensues and by the discharge being allowed free vent from the cervical canal, as by the division of any supposed stricture of the internal os uteri.

Where the cervix is very bulky, the lips somewhat everted, and the canal very granular, nothing proves of so much service as local depletion by means of scarifying the surface or puncturing the cervix in several places, allowing an ounce or two of blood to flow, encouraging its continuance, if necessary, by warm water injections, and subsequently inserting tampons of cotton-wool saturated in glycerine, which tend to keep up a copious watery discharge and so lessen the bulk of the cervix.

In cases where it is not deemed necessary to resort to division of the cervix or scarification, the insertion of a laminaria tent for twelve or twenty-four hours, so as to open up the cervix and expose thoroughly the inflamed mucous surface, and thus enable us to act freely upon it, may prove of much benefit. Care must, however, be taken that inflammatory mischief be not thereby set up.

NOTES ON REMEDIES.

Gradual Dilatation of the neck of the uterus by means of flexible bougies has incontestably good results in some cases. It apparently acts as a general excitant to the sexual system.

Periods of Predilection. Dr. COHNSTEIN, of Heidelberg, (*Arch. für Gynäkologie*, Bd. xv., 1879,) has collected a number of observations to show that generally sterile women are more likely to conceive at certain periods of the year than at others, and to carry the embryo to maturity. These "periods of predilection," however, cannot be expressed in general terms, but must be decided for each individual case by independent observation.

Injections. Dr. DE SINETY recommends lukewarm alkaline vaginal injections taken on going to bed. Vichy water may be used, or the following, which, he says, preserves for a very long time the activity of the spermatozoids :

1329. R.	Caustic potash,	gr. iij-v	
	Sugar,	3 j	
	Water,	f. 3 vj.	M.

For vaginal injection.

Alkalies. As above observed by Dr. MAYRHOFER, the hyperacidity of the vaginal secretions may destroy the spermatozoa. This acidity may exist without any derangement of the health. Dr. A. CHANIER states (*Bull. de Thérapeutique*, June, 1880,) that the best remedy for this abnormal condition of the utero-vaginal secretions is the adoption of an alkaline regimen (alkalies internally, alkaline baths, and tepid alkaline vaginal injections) ; that when the utero-vaginal secretions become neutral the obstacle to fecundation is removed, and conception will probably take place ; and that this disappearance of acidity under an alkaline treatment explains the success obtained in the treatment of sterility at the alkaline and sulpho-alkaline spas, as well as the renown of certain mineral springs. (*Bubenquelle*.)

In order to change the acid secretions of the vagina, which destroy the spermatozoa, Dr. CHANIER, of Paris, recommends alkalies, alkaline drinks and baths, such as of Vichy water, and alkaline vaginal injections, as :

1330. R.	Sodii sulphatis,	3 j	
	Albuminis ovi,	j	
	Aquæ,	Oj.	M.

For a vaginal injection.

—*Bull. Gen. de Thérapeutique*, Nov. 12th, 1880.

NYMPHOMANIA.

The form of genital erethism, which is currently known under this name, is usually symptomatic of disease of the ovaries, of the uterus, or of vaginal or vulvar pruritus. In all cases, close study of its causative relations is demanded, with a view to their removal. In general treatment, the genetic sedatives mentioned below, especially the bromide of potassium, should be exhibited in full doses.

Occasionally the disease is distinctly of centric origin, depending upon obscure cerebral or cerebellar disorganization, when it is to be considered as one of the symptoms of mania, and treated accordingly.

In some rare cases, (one mentioned in the *Trans. Gyn. Soc. of Boston*,) it is marked and persistent, without any other defect either of the local or general health observable. In such instances, the treatment can only be tentative.

NOTES ON REMEDIES.

Camphora and its *monobromide* have each considerable power as anaphrodisiacs, especially the latter, gr. iv., in capsules, three or four times a day.

Cannabis Indica is a powerful sedative, with special influence on the uterus and its annexes, in relieving hyperæsthesia and reducing hyperæmia.

Conium. Dr. ALFRED MEADOWS observes (*Brit. Med. Jour.*, July, 1879,) that of all the anodynes we possess, none can compare with conium as an anodyne to the generative or sexual organs. It calms vascular excitement and moderates ovulation itself. Gr. j. of the alkaloid conia may be used in a vaginal pessary nightly.

Digitalis lessens the flow of blood to the generative organs, and in some cases acts very satisfactorily.

Ether. Dr. LAURENCE TURNBULL combines ether with camphor in abnormal sexual excitement.

1331. R.	Vitelli ovi,	f. ℥ ij	
	Pulv. camphoræ,	℥ ij	
	Ætheris,	f. ℥ ij.	M.

Add the ether to the camphor, and then the emulsion. Dose, a tablespoonful every two hours.

Ferri Bromidum acts moderately in sexual erethism, but less efficiently than the potassic bromide.

Hyoscyamus. TILT combines camphor with hyoscyamus.

1332. R. Camphore,
Ex. hyoscyami,

gr. ij
gr. j.

M.

For one pill. Two or three, thrice daily.

Lupulina has been found effectual as an anaphrodisiac, in doses of six to twelve grains several times a day.

Potassii Bromidum is *par excellence* the sedative of the reproductive system.

Dr. ALFRED MEADOWS believes that by its steady use we may limit ovulation, and indeed absolutely suspend the function altogether, and produce in time an atrophy of the ovary. (*Brit. Med. Jour.*, July 12th, 1879.) The dose should not be less than \mathfrak{ss} . three times daily.

Stramonium, in small doses, is said by PHILLIPS (*Materia Medica*) to be very useful when this affection is unconnected with disease of the sexual organs, and where there is no considerable depression of the mind.

Zinci Bromidum is given by CHARCOT as an anaphrodisiac in doses of gr. v-xx., daily.

Clitoridectomy, as practiced by the late Mr. I. BAKER BROWN, of London, is justifiable where other means fail, and the cause appears to be local irritation.

CHAPTER III.

DISEASES OF THE VAGINA, URETHRA, AND BLADDER.

Synopsis of Diagnostic Points—Vaginitis, Acute and Chronic, Non-specific—Vaginitis, Specific Gonorrhœal—Vaginismus and Dyspareunia—Vaginal Growths—Pruritus Vulvæ and Vulvitis—Cystitis, Acute and Chronic—Urethritis—Urinary Disorders—Irritable Bladder, Dysuria, Polyuria, Ischuria, Enuresis, Vesical Tenesmus. etc.

SYNOPSIS OF DIAGNOSTIC POINTS.

VAGINITIS.

In the various forms of *vaginitis*, the chief difficulty in diagnosis is to distinguish gonorrhœal from simple inflammations. Dr. N. L. GALABIN, however, asserts, (*Diseases of Women*, 1879,) that a conclusion based upon the following signs, or the majority of them, will be right in ninety-nine cases out of a hundred.

Gonorrhœal vaginitis is characterized by:

1. Its sudden onset.
2. The markedly yellow or greenish color, offensive smell, and irritating quality of the discharge.
3. The smarting on micturition produced by extension of the inflammation to the urethra.
4. The occurrence of inflammation or abscess in the vulvo-vaginal glands, the ducts of which can often be distinguished as injected points just in front of the hymen or its remnant.
5. Marked œdema of the vulva and buboes.
6. The communication of contagion to the male.

When most of these are present, the case is *almost*, but not entirely, certain to be one of specific infection.

Dr. LOMBE ATTHILL says, speaking of the two forms of vaginitis: "I must avow that I know no means of distinguishing with any certainty between the two." (*Diseases Peculiar to Women*, p. 37.)

An almost pathognomonic sign of gonorrhœal vaginitis, according to Mr. TAIT, is *adema of the vulva*. All cases of specific origin do not present it; but where it is present, it may be considered the strongest proof of infection; and where this is combined with a high degree of pain and scalding, especially during micturition, the case may be considered as beyond doubt of infectious origin. The discharge in such cases is profuse, purulent, and not glutinous, and the mucous surface of the vagina is of a yellowish-red color; whereas in non-specific or catarrhal vaginitis, the discharge is scanty and tenacious, and the mucous surfaces of a purple hue.

Dr. L. DE SINEY gives another diagnostic point which he considers next to pathognomonic. It is based on the fact that *urethritis* in the female, of other than gonorrhœal origin, is almost unknown; its presence, therefore, is nearly a proof of blenorrhœal poison; but it must be determined by a peculiar procedure. Having carefully cleaned the vulva and vestibule, the finger introduced into the vagina and pressed upon its anterior wall, is to be withdrawn, continuing the pressure from below upward, and from behind forward. Repeating this two or three times if necessary, the liquid in the urethra will be brought to the orifice and can be examined.

This method should be employed some time after micturition. If pus is discovered, the urethritis, and with it the gonorrhœa, is demonstrated. The only possible error would be a urethral chancre; but this would certainly be felt by the finger used as directed. (*Traité de Gynecologie*, 1880.)

VAGINITIS, ACUTE AND CHRONIC—VAGINAL CATARRH—LEUCORRHŒA—COLPITIS.

Of the general means at our disposal to combat vaginal affections, the following survey is given by

DR. A. LEBLOND, OF PARIS.*

Vaginal Injections. This writer observes that the temperature of vaginal injections has much to do with their effects. Taken cold, they produce an afflux of blood to the pelvic basin, and are thus stimulant; while taken warm, their action is sedative. The dangers which some writers have referred to, as attending vaginal injections

* *Traité de Chirurgie Gynécologique*, Paris, 1879.

are probably owing to the fluid being thrown into the uterus; this can largely be avoided by using a syringe, the apertures at the end of which are on the sides, and not at the extremity of the nozzle. When there is much inflammatory action in and near the vagina, the fluid should be thrown in very gradually, as long as ten or fifteen minutes being consumed in an injection. In such inflammatory conditions, injections of infusions and solutions of hyoscyamus, belladonna, etc., are often employed with advantage; these should always be administered lukewarm, as cold applications in such conditions may lead to injurious reactions.

Vaginal Irrigations. These may be either of liquids, as water, plain or medicated; or of gases, as carbonic acid gas or the vapors of chloroform, ether, etc. A variety of apparatus has been employed at various times, which need not be here described. Whichever one is used, to be efficacious, the irrigation should continue at least half an hour at a time.

In uterine neuralgia and dysmenorrhœa, advantage has been derived from injection of *chloroform* vapor into the vagina and uterus. This may be done by the apparatus devised by SCANZONI, or by means of a bottle with a large cork, into which two tubes are introduced, the one connected with a vaginal cannula, the other with a hand-ball for forcing air. The chloroform is poured on some cotton in the bottom of the bottle, the cork inserted, the cannula introduced into the vagina, and the vapor driven in by pressing the ball. The injection of chloroform vapor sometimes produces considerable irritation of the vaginal walls, and it therefore must be used with caution, and not of much strength.

Medicated Tampons. These are valuable in many forms of vaginitis. They should be long, so as to separate the vaginal walls throughout their whole extent, and made of dry wadding. They are medicated with glycerine, the glyceroles, alum, tannin, *saponified coal tar*, (which has been highly extolled by M. SIREDEY,) or other substance.

The proper introduction of the tampons can only be done with a speculum. Their extraction will be facilitated by anointing them with cerate or oil. They should not be allowed to remain in for many hours at a time, lest they interfere with urination. In extracting them, patience and care, and the free use of warm water, are often necessary to avoid painful dragging, or laceration of the delicate lining membrane of the vagina.

Vaginal Cataplasms. At one time this method of medication was much employed, but of late years has fallen out of use. The neatest and most effectual are prepared from wadding soaked in infusion of *fucus crispus*. It is to be had ready prepared from pharmacists, in the form of sheets. A piece about three inches square is cut off, moistened with warm water, rolled into the form of a cylinder, and a string being attached to facilitate its withdrawal, it is inserted into the vagina by the hand or a *porte-tampon*. To be efficacious, they should be renewed daily, and without interruption for considerable time. They have been found valuable in many inflammatory affections of the vagina and os.

Vaginal Suppositories, or Medicated Pessaries. These have been familiar to the profession from the earliest antiquity. The excipient may be cerate, cocoa-butter, or petroleum products containing sufficient paraffine to give consistency; the active ingredient is belladonna, morphia, iodide of lead, etc. The most appropriate size is an inch and a half in length, and three-fourths of an inch in circumference. They can be introduced daily by the patient herself. As the absorptive power of the vaginal mucous membrane is very slight,* they are less efficacious than rectal suppositories.

ELOY, (*Revue générale de Clinique et de Thérapeutique*, Paris, July, 1890,) divides acute vaginitis into the initial or primary stage, and the terminal stage. During the first he employs hot, soothing injections of liquid vaseline and cocoa-butter, combined with boric acid, 300 grains (20 grammes), to each pint ($\frac{1}{2}$ litre) of the mixture, every few hours. When the stage of acute inflammation has passed, he uses the following injections:—

Sulphate of iron or chloral,
Distilled water,

300 grains (20 grammes)
1 pint ($\frac{1}{2}$ litre).

Or:

Potassium permanganate,
Distilled water,

$2\frac{1}{2}$ grains (0.16 gramme)
1 pint ($\frac{1}{2}$ litre.)

If the discharge persists after several days, he packs the vagina with cotton tampons saturated with glycerole of tannin, containing equal portions of tannic acid and glycerine, touching the mucous

* Dr. HAMBURGER, however, and some other writers, have maintained that the absorptive power of the vaginal surface is considerable. The general assumption is that it is one-half that of the rectum. As the fact rests uncertain, caution should be exercised in using the more potent drugs.

membrane with a strong solution of silver nitrate after the removal of each tampon.

Balzer and Chevalet have treated 40 cases of different degrees of intensity with tampons soaked in retinol. These tampons, they claim, are perfectly well borne, produce no pain, and have proved extremely successful in the cure of this disease, especially where it is accompanied by fungoid vegetations. A mixture of retinol, rosin, and powdered oak-leaves has given a mass which is readily manipulated and of excellent service when applied to the vagina every three or four days. For daily applications, a mixture of retinol and rosin with borate of sodium gives better results, although the sodium produces some smarting of the vulva when there are any erosions.

SIR CHARLES CLARKE, OF LONDON.

This distinguished physician often prescribes the following internally in protracted leucorrhœal discharges. It is also highly praised by Dr. S. ASHWELL in his work on *Diseases of Women*:

- | | | | |
|----------|----------------------|-------------|----|
| 1333. R. | Infusi cascarillæ, | f. ʒj. | |
| | Aquæ pimentæ, | f. ʒ ss. | |
| | Tinct. sabinæ comp., | f. ʒ ij-ij. | |
| | Syr. zingiberis, | f. ʒj. | M. |
- For one dose three times daily; a blister to the sacrum.

DR. BUYS, OF BORDEAUX.

This author, (*Bordeaux Medical*, 1873,) recommends in chronic discharges from the vagina the following injection:

- | | | | |
|----------|-------------------|-----------|----|
| 1334. R. | Tincturæ iodinii, | gtt. xiv. | |
| | Acidi carbolici, | gtt. vj. | |
| | Glycerinæ, | f. ʒj. | |
| | Aquæ destillatæ, | f. ʒ vj. | M. |
- For a vaginal injection.

PROF. TRÉLAT, PARIS.

The following has been extolled by Professor TRÉLAT, in vaginal leucorrhœa:

- | | | | |
|----------|-----------------------|---------|----|
| 1335. R. | Acidi carbolici pur., | gr. xv. | |
| | Aquæ coloniensis, | ʒj. | |
| | Aquæ, | ʒ ij. | M. |

With this he moistens a tampon, and carries it to the bottom of the vagina. After the surfaces have been cleaned by the use of this, he substitutes for it a milder preparation, as

- | | | | |
|----------|----------------|--------|----|
| 1336. R. | Acidi tannici, | ʒj. | |
| | Glycerinæ, | f. ʒj. | M. |
- To be applied on a tampon.

DR. A. A. BOINET, PARIS.

1337.	R.	Tincturæ iodi,	f. $\frac{3}{4}$ iij.	
		Acidi tannici,	$\frac{3}{4}$ j.	
		Potassi iodidi,	$\frac{3}{4}$ ss.	M.

This solution is employed to paint the vagina, in acute or chronic vaginitis, and the uterine neck, in engorgement and ulceration. The proportion of the tincture of iodine is to be lessened, according to the character of the inflamed tissues and the effect that it is desired to produce.

M. MAISSONNEUVE, PARIS.

1338.	R.	Ferri sulphatis,	$\frac{3}{4}$ ijss	
		Aquæ,	Oj.	M.

This solution is advised in injections in vaginitis. After each injection, a certain quantity of starch is to be introduced into the vagina.

EDMOND LANGLEBERT, M. D., PARIS.

1339.	R.	Tincturæ iodi,	f. $\frac{3}{4}$ v-x	
		Aquæ destillatæ,	Oij	
		Potassii iodidi, q. s. to prevent the precipitation of the iodine.		M.

A useful injection in vaginitis after the acute stage has passed. Ulceration, if any exist, should be lightly touched with nitrate of silver. If the vaginal discharge be offensive, the following injection is useful:

1340.	R.	Liquoris sodæ chlorinatæ,	f. $\frac{3}{4}$ vj	
		Aquæ destillatæ,	Oiss.	M.

E. J. TILT, M. D., OF LONDON.

This author states that whether vaginitis occurs spontaneously or as the result of uterine catarrh, it is best cured by the injection of a solution of nitrate of silver. His usual solution is one of forty grains to the ounce, and he directs that the patient be placed on her back, a small glass speculum introduced as far as possible, and an ordinary glass syringe of the solution be injected. The speculum is then to be very gradually withdrawn to the vicinity of the vulva, after the fluid has been left in contact for two or three minutes; then the speculum is to be removed, and the fluid received into a small cup. Or, a speculum may be applied, and as it is withdrawn,

the sides of the vagina are freely touched with the toughened stick of silver nitrate, after the plan of RICORDI in granular vaginitis.

These measures recommended by Dr. TILT, seem, unnecessarily severe. Dr. A. COURTY (*Maladies de l' Uterus et de ses Annexes*, 1866,) advises to begin with a solution of gr. xv. to water f.5j.; although he adds that it may be increased to gr. xxiv. or even to gr. xlvij. He insists, especially, that the vagina shall be carefully washed and wiped with cotton through the speculum before the caustic solution is applied.

DR. GUIPON, PARIS.

1341. R. Ferri sulphatis, 3ij
 Ferri bicarbonatis, 3ij
 Cinchonæ pulveris,
 Canellæ pulveris,
 Ergotinæ, aa 3j. M.
- One or two pinches to be administered before the two principal meals, in idiopathic leucorrhœa. Its usage is to be suspended on the approach of the menstrual epochs. Prolonged vaginal injections morning and evening, with cold water and vinegar. Tonic regimen.
1342. R. Acidi tannici, gr. ix
 Cereæ albæ, 3vj
 Adipis, Div. M.
- Melt by a slow heat, and cool in a mould.

This is a useful vaginal suppository in leucorrhœa.

LAWSON TAIT, F. R. C. S., BIRMINGHAM.

This author warns against the use of vaginal injections in acute vaginitis, on account of the risk of causing endometritis and ovaritis. He considers no remedy equals the steady application of hot fomentations of acetate of lead and opium, the same drugs being inserted into the vagina in the form of soluble pessaries. When the acute stage has passed, pessaries of cacao-butter containing tannin or acetate of lead are useful; after that, injections of a four per cent. solution of *permanganate of lime* will establish a cure.

In chronic forms, which do not extend to the uterus, brushing the whole surface with equal parts of glycerine and carbolic acid, followed by the use of an astringent pessary of acetate of lead or sulphate of zinc, will speedily effect a cure.

Dr. NEFFEL, of New York, has called attention to several cases of intense vaginitis, coincident with lead-poisoning from the use of cosmetics, and which disappeared under the internal use of iodide of potassium and sulphur, without local medication of any kind.

DR. L. DE SINETY.

Acute Vaginitis. At the outset the treatment will consist of lotions and lukewarm emollient injections. As soon as the vagina permits it, small tampons charged with a weak solution of carbolic acid (1 to 300) should be introduced and retained. Later this may be followed by painting the interior coat with a solution of silver nitrate (1 to 30.) To succeed with this, *every part* of the anterior of the vagina must be touched; and this repeated every three or four days.

Chronic Vaginitis. Astringents have the preference in this form. The best, in order of excellence, are *tannin*, *alum* and *sulphate of zinc*. Tampons wet with one of the following solutions, and frequently renewed, should be employed:

1343. R.	Acidi carbolici crystal,	gr. x	
	Alcoholis,	q. s. to dissolve.	
Add:			
	Acidi tannici,	℥j	
	Glycerinæ,	℥j.	M.

Or:

1344. R.	Acidi carbolici,	vijs	
	Alcoholis,	℥j $\frac{1}{2}$	
	Acidi tannici,	℥ijss	
	Aquæ,	f. ℥ijj.	M.

These tampons act better than injections in vaginal leucorrhœa. They may profitably be alternated with alkaline vaginal enemata. A general tonic treatment is often required to aid these local measures.

HENRY M. FIELD, M. D., OF BOSTON.

Atony of the vaginal walls. This condition is quite common, accompanied or not by a leucorrhœal discharge. Frequently this may be relieved by astringent vaginal suppositories, as:

1345. R.	Acidi tannici,	gr. x.	
	Ol. theobromæ,	q. s.	M.
For one suppository. One daily.			

For this, borax or alum may be substituted. The borax is a mild astringent and local tonic. The extract of rhatany may also be used with excellent results. (*Four. Gyn. Soc., Boston*, vol. VI.)

NOTES ON REMEDIES.

INTERNAL REMEDIES.

Alumen, in doses of gr. v–viiij. thrice daily, in combination with pilulæ aloes or with nitre (gr. x.), is productive of good in some obstinate cases of leucorrhœa.

Alkalies are often of value in correcting acrid discharges from the vaginal membranes.

Cantharides. The use of the tincture, once so highly praised by Dr. DEWEES and others, has fallen into comparative disuse. It was given gtt. xx. thrice daily, in a demulcent draught, the dose being subsequently increased to gtt. xl–l., until it produced slight strangury, when the dose was diminished or discontinued. The average period required for cure was about four months.

Copaiba is highly spoken of by a number of writers, in doses of ℥ xv. thrice daily.

Cubebs have been employed with success.

Ergot, in doses of gr. v. thrice daily, often gives good results, especially if a blister be applied to the sacrum.

Gallæ Pulvis, in doses of gr. x.–xx., in decoction of tormentilla, daily, is given with great benefit at the Lock Hospital, London.

Hæmatoxyli in decoction, has been employed with advantage.

Juniperus frequently exerts a beneficial influence.

Krameria. The extract, in doses of gr. xx. daily, often arrests the discharge and improves the tone of the system.

Potassii Nitratis. Dr. DEWEES prescribed the following with success in some obstinate cases :

1346. R.	Potassii nitratis,	3 ^v	
	Aluminis,	3 ^{ijss.}	M.
Divide into thirty powders; one thrice daily.			

Pulsatilla, tincture, gtt. v. thrice daily, is said by PHILLIPS to quickly relieve leucorrhœa attended by pain in the loins, depression and derangement of the nervous system.

Sabina has been recommended. Its use is most promising in obstinate leucorrhœal discharges.

Tannicum Acidum, in doses of gr. ij.–iij. twice or thrice daily, in aqueous solution, combined with a small portion of dilute nitric acid, has been found an efficacious remedy.

Terebinthina Oleum in small and repeated doses, is recommended by Dr. PEREIRA, in chronic cases, unattended by inflammatory symptoms.

VAGINAL INJECTIONS.

Acetum, ʒij. to a quart of water, is a popular and often useful domestic remedy.

Acidum Salicylicum. Injections of salicylic acid have been used with perfect satisfaction in all discharges from the vagina. This formula is offered :

1347. R.	Acid. salicylic.,	ʒ iss	
	Glycerinæ,	f. ʒ iij	
	Aquæ,	Oij.	
Sig.—For six injections. One daily.			M.

In uterine catarrh the canal should be injected by means of a catheter small enough for the purpose. The acid should be well dissolved in the liquid, for obvious reasons. This method is highly recommended in the treatment of chronic blennorrhagia, and it is said to succeed perfectly.

Aloes. In chronic and obstinate vaginitis, especially of blennorrhœal origin, French writers have lauded injections medicated with tincture of aloes. (*Fonnsagrives, Thérapeutique Appliquée*, vol. II.)

Alumen. Dr. TYLER SMITH, of London, has found the following injection very serviceable :

1348. R.	Aluminis,	ʒ ss	
	Acidi tannici,	ʒ j.—ij	
	Aquæ,	Oij.	
One-half to be used at night, and the other half in the morning.			M.

Oak bark decoction also makes a good vehicle :

1349. R.	Aluminis,	ʒ j	
	Decocti quercus albæ,	Oj.	
			M.

Dr. E. J. TILT, of London, remarks that he has repeatedly found the prolonged use of alum injections to produce an irritable, sub-inflammatory state of the cervix uteri ; he advises, therefore, when astringent injections are long continued, to use those of alum, zinc and sugar of lead, on alternate days. LEBLOND notes that it hastens the exfoliation of the vaginal epithelium, and curdles the albumen in the discharges, and is objectionable on these accounts. Dr. ATTHILL never uses it when any inflammatory action is present.

Ammonii Murias has occasionally been used in vaginal injection :

1350. R.	Ammonii muriatis,	ʒ j—iv	
	Aquæ,	Oj.	
			M.

Argenti Nitras, in solution, has been advised as a vaginal injection :

1351. R.	Argenti nitratis,	gr. iij	
	Aquæ destillatæ,	f. ʒ ij.	
			M.

This agent, once very popular, is now much less so. **ATTBILL** remarks that better results can almost always be obtained by other means, and this is the general opinion. **Dr. SINEY**, however, still recommends painting the *whole* of the vaginal wall with a solution of **i to 30**.

Bismuthi Subnitras, applied once a day in powder, on a small piece of charpie, by means of a speculum, to the whole of the vaginal mucous membrane, is an effectual remedy in some cases. Or it may be mixed into a thick cream with glycerine, and applied to the whole of the vaginal membrane.

Boracicum Acidum in acute vaginitis. **Dr. WARREN GREENE**, of Maine, has employed with marked benefit, a *glycerole of boracic acid*, (*Boston Med. and Surg. Jour.*, 1880.) Hot glycerine dissolves ʒij. to the ounce, and holds it perfectly on cooling. As a lotion, it may be used ʒij. to water Oj.

Calcis Aqua. The vaginal injection of a weak solution of lime-water sometimes effects a cure after the failure of other remedies.

Catechu. The infusion, injected once or twice a day, often greatly lessens the discharge.

Cocculus Indicus is recommended by **PHILLIPS**, when the discharge is of a sero-purulent character, with pain in the lumbar region. Gtt. v.-x. of the tincture, two or three times a day.

Cupri Sulphas. The following injection, given after previously washing out the vagina with soap and water, is of service :

1352. R.	Cupri sulphatis, Aquæ tepidæ,	gr. xx-xxx O ss.	M.
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To be used thrice daily.

Feculum. **Dr. GEORGE H. BIXBY**, of Boston, has recommended starch injections in vaginal inflammation, (*Jour. Gyn. Soc., Boston*, vol. V.) His formula is :

1353. R.	Thin boiled starch, Pulv. chlorate of potash, Glycerine,	$\frac{1}{2}$ pint i teaspoonful 4 teaspoonfuls.	M.
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Ferri Chloridi Tinctura, ʒj. to a pint of water, forms an excellent astringent injection.

Glycerina, in dilute solution, as an addition to other medicaments, exerts an excellent effect. It increases the discharge, but relieves congestion.

Granati Radicis Cortex. The decoction of the root-bark, (ʒij. , aquæ O ij. , boiled to O j.) is useful vaginal injection, combined with alum :

1354. R.	Aluminis, Decocti granati radicis corticis,	ʒj O j.	M.
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Hydrargyri Chloridum Corrosivum. Dr. DEWEES employed the following solution as a vaginal injection in obstinate leucorrhœas :

1355. R. Hydrargyri chloridi corrosivi, gr. j.
Aquæ, f. ℥ ij.

It should be used with great caution, as, even at this strength, it may act most painfully on the surface. Milder means are safer. His directions are that it is to be used only in chronic cases; given at first only once a day, then several times a day, until heat and irritation occur, when lotions of acetate of lead will effect the cure.

Iodum. Dr. TILT gives :

1356. R. Tinct. iodi, āā f. ℥ ij. M.
Tinct. opii,

Two or three teaspoonfuls to be added to a pint of water, to be used once or twice a day.

Iodoform. Tampons smeared with iodoform are often valuable in inflammatory affections of the vagina. Oil of fennel or Peruvian balsam will help to mask the odor. In leucorrhœa ℥j. of iodoform to ℥j. of tannic acid may be applied in a dry state. (BARTHOLOW.)

Matico. The infusion has been injected with benefit.

Plumbi Acetas. The following is a useful vaginal injection :

1357. R. Plumbi acetatis, gr. vj.
Aquæ, f. ℥ j. M.

Plumbi Subacetatis is preferred by Dr. TANNER in the following solution, the whole of which is to be used twice a day :

1358. R. Liquoris plumbi subacetatis, f. ℥ ij.
Aquæ, Oj. M.

Potassii Chloras. The following vaginal injection has been employed with success :

1359. R. Potassii chloratis, ℥j.
Aquæ destillatæ, f. ℥ viij. M.

Potassii Permanganas, in dilute solution (gr. v. to aquæ f. ℥j.) is undoubtedly very beneficial in many cases, especially where the discharge is foetid. An objection to it is that it stains the linen.

Pulsatilla. ℥j. of the tincture to Oj. of water, is recommended by PHILLIPS for a daily enema in obstinate leucorrhœas.

Quercus Alba. The decoction, with or without alum, is a safe and effective vaginal injection.

Quiniæ Sulphas, in solution, gr. x-xxx. to aquæ ℥j., is often a very efficient application in acute cases.

Sodii Boras. Dr. GRAILY HEWITT, of London, advises, when the discharge is acrid, frequent ablutions of the external parts with a borax lotion

to prevent irritation. ATTHILL believes that it is both astringent and tonic. The usual strength is ʒj. to water Oj.

Sodii Carbonas. Dr. S. ASHWELL states that repeated experiments have shown that inflammation of mucous membranes always engenders a free acid on their surface, and that to neutralize this he and others have obtained almost immediate relief by the use of an alkali. (*Diseases of Women*, p. 157.) He recommends :

1360.	R.	Sodii carbonas,	ʒj-ʒj	
		Aquæ,	Oj.	M.

For a vaginal injection in leucorrhœa.

Tannin. This is one of the most popular substances for astringent injections. The amount required is ʒss.-j. in a pint of cold water. Glycerine may be added.

Thea. An infusion of green tea makes a good injection.

Tormentilla. The decoction (ʒij. aquæ Oiss, boiled to Oj.) is an excellent vehicle for alum, in vaginal injection.

Zinci Acetas. This salt forms a useful vaginal injection, in the strength of gr. ij.-iv. to aquæ f.ʒj. The following was a favorite formula with Sir ASTLEY COOPER :

1361.	R.	Zinci sulphatis,	gr.vj	
		Liquoris plumbi subacetatis,	℥xxx	
		Aquæ,	f.ʒiv.	M.

By this formula, decomposition takes place, the acetate of zinc resulting.

Zinci Oxidum. The following vaginal injection has been given with success :

1362.	R.	Zinci oxidi,	ʒss	
		Aquæ,	Oij.	M.

Zinci Sulphas, gr. j. to water f.ʒj., is beneficial where the inflammation is slight.

Zinci Sulpho-Carbolas, gr. v. to aquæ ʒj., as an injection, is said by J. MATTHEWS DUNCAN to be an excellent remedy in the chronic forms ; each injection should be, about, ten ounces.

OTHER LOCAL MEASURES.

Poultices. M. FOURNIER, of the Lourcine Hospital, Paris, makes use of voluminous cataplasms which quite distend the vagina ; and he states that he was first induced to resort to this practice by having observed the effects which had several times resulted from his pupils having forgotten to remove large wadding plugs that had been introduced. In each instance, these, so far from having acted prejudicially, had proved of service in treating vaginitis.

VAGINAL TAMPONS.

Cotton. This is a convenient substance for introducing local medication into the vagina. Any ordinary medicated cotton can be used.

Marine Lin has been extolled by Dr. A. J. C. SKENE as one of the most excellent materials for a tampon in vaginitis. The tar which it contains acts antiseptically, and is also a very efficient agent in inflammations of mucous membranes generally.

Hot-water Vaginal Douche.—This not infrequently fails to effect good results owing to ignorance or negligence in the details of applying it. The following rules are laid down by Dr. E. C. DUDLEY, of Chicago, for its administration. (*Chicago Medical Gazette*, 1880):

1. It should invariably be given with the patient lying on the back, with the shoulders low, the knees drawn up and the hips elevated on a bed-pan, so that the outlet of the vagina may be above every other part of it. Then the vagina will be kept continually overflowing while the douche is being given.

2. It should be given at least twice every day, morning and evening, and generally the length of each application should not be less than twenty minutes.

3. The temperature should be as high as the patient can endure without distress. It may be increased from day to day, from 100° or 105° to 115° or 120° Fahr.

4. Its use, in the majority of cases, should be continued for months, at least, and sometimes for two or three years. Perseverance is of prime importance.

The sitting posture is especially objectionable, for another reason. It favors pelvic congestion by force of gravity, while the dorsal position utilizes this force during the application of the douche.

A satisfactory substitute for the bed-pan may be made as follows: Place two chairs at the side of an ordinary bed, with space enough between them to admit the lower bucket; place a large pillow at the extreme side of the bed nearest the chairs, spread an ordinary rubber sheet over the pillow, so that one end of the sheet may fall into the bucket below, in the form of a trough. The douche may then be given with the patient's hips resting on the pillow and with one foot on each chair; the water will then find its way along the rubber trough into the bucket below.

VAGINAL SUPPOSITORIES.

Medicated Pessaries. Usually the patient herself is directed to insert these, placing them in the vagina as far as the finger can reach. The vehicle employed is generally cacao-butter. The following is a table of the average strength:

Sedative Suppositories.

Atropine,	gr. $\frac{1}{10}$
Belladonna, (alc. extract,)	gr. ij
Opium,	gr. ij
Morphia,	gr. ss.

Cicatrizing and Emollient.

Bismuth oxide,	gr. xv
Borax,	gr. xv
Zinc oxide,	gr. xv.

Astringent.

Alum,	gr. xv
Alum and iron,	gr. x
Alum and catechu,	aa gr. xv.
Acetate of lead,	gr. viij
Acetate of lead and opium,	gr. v., of opium gr. ij
Tannin,	gr. x
Matico,	gr. x
Gallic acid,	gr. x.

Hæmostatic.

Perchloride of iron,	gr. v
Persulphate of iron,	gr. v.

Caustic.

Persulphate of zinc (dried,)	gr. x.
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Antacid.

Carbonate of soda,	gr. xv.
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Disinfectant.

Carbolic acid,	gr. v.
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Alterative and Resolvent.

Iodide of lead,	gr. v
Iodide of lead with atropine,	gr. v., atrop. gr. $\frac{1}{10}$
Iodide of potassium,	gr. x
Bromide of potassium,	gr. x
Mercurial, (ung. hydrarg.,)	gr. xxx.

VAGINITIS (SPECIFIC, GONORRHOÆAL.)

In the gonorrhœal form of vaginitis, the treatment recommended by

J. T. DARBY, M. D., OF NEW YORK,

Is almost exclusively local. (*Archives of Clin. Surgery*, June, 1878.)
Internal remedies are of no efficacy. The only proper treatment is

a local one, and general treatment is only beneficial for the constitutional symptoms, or to make the urine less acrid and irritating, to relieve the pain in micturition. Alkalies given by the mouth answer the latter indication.

In a severe case of the disease, absolute rest, elevation of the hips, and the use of some local remedies, will assuage the pain and inflammation. The only medicines to be administered internally are to prevent the burning in the urethral tract. Dr. D. discards entirely copaiba, turpentine, and the like, as they do no good, while on the contrary they do harm by disturbing the digestion.

Lotions applied to the part itself act as sedatives, of which lead lotion is the best where there is a good deal of inflammation without very much suppuration. Direct the patient to sit over a vessel, and then by means of a fountain syringe inject the parts well. The continuous application of *cold* is sometimes very beneficial. If the bowels are constipated, give a laxative to cause a free action; common Epsom salts or scidlitz powder will do very well. We do not wish to cause a diarrhœa, but simply to produce a few active movements so as to help remove the congestion.

The diet should be regulated so as not to be too stimulating. Rice and milk with stale bread may constitute the food until the fever has abated. If the fever runs high, we may give tincture of aconite, or the tincture of *gelsemium sempervirens*. This latter is one of the best remedies for the purpose in this disease. This agent has no specific influence on the disease, but it simply reduces the constitutional disturbance produced by a local cause.

Sometimes the discharge is very profuse. In such a case, use warm water for the injections instead of cold. Where suppuration is abundant, the warm injections act better, and, moreover, they are much more comfortable to the patient. In addition to the warm water injections, astringents may be used, such as acetate of lead or tannic acid. Opium may be combined with these remedies, as it tends to relieve the smarting they produce, and prevents pain by its direct action.

Another remedy of considerable efficacy is *chlorate of potassa*. This may be used alone or in combination with the bromide of potassium. A very good prescription is the following:

1363. R.	Potass. chlorat., Potass. bromid., Aluminis, Aquæ fervent.,	āā	ss. j. Oij.	M.
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This is one of the best remedies to alleviate the pain and stop the discharge.

DR. GAUDRIOT, OF PARIS.

1364.	R.	Zinci chloridi liquoris (Fr. codex,)	gtt. v.	
		Morphiæ sulphatis,	gr. ss.	
		Mucilaginis,		
		Pulv. sacchari albi,		
		Feculi,	āā	q. s. M.

Make one suppository. To be introduced into the vagina and retained by a bandage. The vaginal secretions dissolve the suppository, and the active agents are brought into contact with the membrane.

LAWSON TAIT, F. R. C. S., BIRMINGHAM.

Acute gonorrhœal cervicitis or endo-cervicitis, causes much anxiety, for the disease may spread up the uterus and along the tubes to the ovaries. The patient must be kept rigidly in bed, and be treated by soluble pessaries of acetate of lead and opium, and general anti-phlogistic remedies. On no consideration whatever should injections be employed in such a case, either vaginal or intra-uterine.

Acute gonorrhœal ovaritis is a common result of the injection. There is agonizing pelvic pain, generally on one side, and all the signs of a severe inflammatory attack. Micturition and defecation are often accompanied by excruciating pain. By administering an anæsthetic, a vaginal examination will reveal the enlarged ovary. The treatment should consist in leeches to the perinæum, a blister over the ovaries, diuretics, and small, frequent doses of opium. The rectum should be well evacuated by an enema, and the bowels kept quiet for a few days.

In cases of fading gonorrhœa, it is very common to find that pressure on the trigone gives a good deal of pain, and that the urine is alkaline and purulent. Injection of the bladder, in these cases, with weak solutions of carbolic acid or neutral acetate of lead, will very rapidly effect a cure.

In acute *gonorrhœal urethritis*, no application is so good as a morphia pessary; the chronic form, which is often left after the acute stage has passed, is very easily cured by the application of equal parts of carbolic acid and glycerine on a probe armed with cotton-wool.

JOSEPH MULREANY, F. R. C. S., ENGLAND.

Gonorrhœal Metritis. Where the gonorrhœal inflammation extends to the uterus, bringing on the complication of specific metritis,

this writer (*Half-Yearly Compendium*, vol. VIII.,) prescribes at the outset, dry heat to the abdomen, and internally, a combination of the alkaline carbonates, iodide of potassium, and opium, in large and repeated doses, such as in the following formula :

1365. R.	Pulv. potass. bicarb.,	℥ij. ad ℥iij	
	Pulv. potass. nitratis,	℥ij. ad ℥iss	
	Sp. ammon. aromat.,	f. ℥vj. ad f. ℥j	
	Potassii iodidi,	℥ss. ad ℥j	
	Syrupi zingiberis,	f. ℥j	
	Aq. pur.,	ad f. ℥vj.	M.
A tablespoonful to be taken every one, two, or three hours, during the urgency of the symptoms.			

Sometimes he gives a dose of calomel, gr. v. ad gr. x., if there is a bilious taint either of skin or breath. Rarely are leeches necessary; and at this stage he never uses injections. Within a few hours marked relief is obtained. The opium dominates the pain, and frees the system from its depressing influence; and the beneficial action of the alkalies on the blood, in this, as in many acute inflammatory affections, is most marked. He gives no alcoholic stimulants, and restricts the patient to a purely milk diet.

The above treatment requires very little alteration in most cases, till a cure is effected. Another point in this plan is that the bowels are kept quiet. If they do not act for three or four days, so much the better, as by that means the inflamed and enlarged uterus is neither pinched nor disturbed by excessive peristaltic movement; they of themselves, however, act about the fourth day; but if they do not, a dose of sod. et potass. tart. and rhubarb is sufficient to effect that object.

VAGINISMUS AND DYSPAREUNIA.

This common and distressing affection is frequently a neurosis, without visible cause; but it is also, at times, owing to herpes, vaginal fissure, hypertrophied and painful papillæ, mucous patches, or disease of the urethra. These various conditions require appropriate treatment.

PROF. J. MATTHEWS DUNCAN, M. D., LONDON.

In simple, pure neurotic cases of vaginismus, there is no treatment which is of decided use. Enlargement or distension of the

vaginal orifice only slightly, or not at all, modifies the disease. Even the distension caused by childbirth has no good effect. In a bad case of this kind there is no absence of the disease when sexual relations are resumed. Cutting of the pudic nerve might be tried, but has been performed without benefit. Cutting away the sensitive parts is useless; alleged cures from this proceeding are misinterpretations.

In instances occurring soon after marriage, there can often be discovered a painful red spot at the fourchette, and occasionally also a fissure there, or near there. Time and rest are all that are required in these cases, the rest meaning a separation of the married parties. If prolonged, childbirth will cure these cases.

Another frequent cause in newly-married women is *vaginitis*, either acute or chronic. The treatment appropriate to these inflammatory conditions will, when successful, also remove the painful spasm.

Another not uncommon local cause, and one apt to be overlooked, is the presence of one or more little ulcerations, situated around the orifice of the vagina beyond the hymen. They are intensely tender and sensitive, and are probably allied to eczema or lupus. They should be removed either with the knife or the cautery; but the success attending these operations has not usually been of a kind to boast of.

DR. H. HILDEBRANDT, OF KÖNIGSBERG.*

Professor Hildebrandt condemns the treatment of vaginismus by forcible dilatation, whether under anæsthetics or not. The course he directs is to begin by a removal of any local cause of the reflex spasms, and then to proceed to methodical *gradual* dilatation.

These local causes may be as follows :

Local inflammatory affections, as eczematous, or erythematous conditions of the introitus vaginæ; inflamed carunculæ myrtiformes; sensitive cicatrices of the hymen; urethritis, etc. These may generally be removed by fomentation with warm lead-water, by touching with nitrate of silver or tincture of iodine, or by removing painful cicatrices or carunculæ with the knife or scissors.

Affections of the uterus or ovaries, especially forms of chronic inflammation of those organs. These, at times, lead to reflex spasms

*Part VIII. of Billroth, *Handbuch der Frauenkrankheiten*.

of the muscular floor of the pelvis. They must receive appropriate treatment before we can hope to cure the vaginismus.

The *dilatation* should be begun only after the above local causes have received attention. At first only small specula should be employed. When coition begins, it is important to instruct the husband to be moderate and careful; and the fear of the act on the part of the woman should be allayed by assurances that there is no danger of the suffering returning.

In all cases the following, introduced every evening, will be well to try :

1366. R.	Butyri cacao,	4 grammes.	
	Potassii bromidi,	50 centigrammes.	
	Belladonnæ extracti,	30 "	
	Acidi thymici,	5 "	M.
For a vaginal suppository.			

He believes the medical treatment alone is generally sufficient to effect a cure. The parts should be carefully examined for any fissure or ulceration. If present, they are to be cauterized with nitrate of silver, tincture of iodine, or powdered with iodoform. Dilatation, either gradual or forced, may be necessary, but our author believes that this is very rarely the case. Nearly all such patients require, in addition to the local treatment, such general tonic measures as iron, quinine, mineral waters and massage.

M. T. GALLARD, M. D., OF PARIS,

Recommends, where there is redness or excoriation of the mucous membrane, an iodoform ointment, as :

1367. R.	Iodoformi,		
	Ol. theobromæ,	āā	3ss
	Axungiæ recentis,		3iv. M.

If there is only pain, without any apparent alteration of the mucous membrane, he prescribes :

1368. R.	Ext. belladonnæ,		gr. xlv
	Axungiæ recentis,	āā	gr. xlv. M.

In either case, he directs plugs of charpie to be made, as small as they choose to commence with; and in order not to frighten the patient, he charges her with the making of them, instructing her to count the threads which enter into each of these plugs, to be introduced into the vagina each night, after being anointed with one or

the other of the two ointments mentioned above. If at first she uses the iodoform, she will be able, after a few days, to replace it by the belladonna, when the redness or excoriation, or the eruption of the vulvar region, has disappeared. Only, in either case, care must be taken to increase each day, by an imperceptible amount, but previously determined, the number of threads employed—ten, twelve, or fifteen, for example. So we shall secure, after a time, which will never be very long, the use of a plug of such size as that, after having removed it, the place may be supplied by the virile member without the substitution causing any pain. He attributes the cure in these cases chiefly to the narcotic action of the unguents applied, though not denying that there may be advantage in the mechanical effect of the dilatation also.

He utterly condemns all use of the knife in such cases, unless, possibly, when the carunculæ myrtiformes are inflamed, swollen, or ulcerated, when he would sometimes admit the ablation of these as a more speedy mode of cure than treatment by caustic only.

DR. EUGENE BOUCHUT, PARIS.

1369. R. Extracti krameriae, ℥ ss
 Butyri cacaoe, ℥ j. M.
 Make twelve suppositories. One to be introduced into the vagina night and morning. Valuable where there is vaginal fissure.

PROFESSOR CARL SCHROEDER.

Bathe the external genitals cautiously with dilute lead-water, and afterward, when the redness subsides, pencil the sensitive parts with :

1370. R. Argenti nitratis, ℥ ijss
 Aquæ destillatæ, f. ℥ j. M.

Or with :

1371. R. Acidi carbolici, gr. x
 Aquæ, f. ℥ j. M.

This was also the treatment preferred by Prof. SCANZONI, and in many instances it is entirely successful, and dispenses with the severe surgical measures introduced by SIMPSON, SIMS, and others.

W. H. BYFORD, M. D., CHICAGO.

This writer treats vaginismus by applying the solid nitrate of silver to the vulva every ten or fourteen days, and in the interval,

glycerine and tannin. The first application reduces the sensitiveness decidedly, and it becomes less after each successive touch until finally cured. Rational general treatment should always accompany this local one.

Mr. I. BAKER BROWN has noted that hyperæsthesia of the vagina is occasionally dependent on diseases of the *rectum*, especially fissure, and disappears when this condition is removed. (*Surg. Dis. of Women.*)

As parturition would almost certainly relieve this condition, a simple and sure cure could be effected by fertile coition, carried out when the patient was thoroughly under the influence of ether.

NOTES ON REMEDIES.

Acidum Carbolicum. (See F. 1371.)

Argenti Nitras, locally applied.

Atropia. Dr. PEASLEE recommends :

1372. R. Atropiæ,
Adipis,

gr. ij
3 j.

M.

For local use.

Belladonna is useful at times.

Ice. The application of finger-shaped pieces of ice in the vagina is recommended by HOLST.

Iodoformum is praised by LEBLOND and others. It may be given in suppositories, each containing gr. x.

Krameria has been employed by BOUCHUT.

Opium. A full dose of opium, or a hypodermic injection of morphia, will sometimes relax the spasm of the constrictor muscle, and relieve the symptoms. (FONNSAGRIVES.)

Plumbum. Goulard's extract is often exceedingly soothing.

Stramonium is occasionally beneficial.

VAGINAL GROWTHS.

The vegetations and warts which form on the labia may be removed by the knife or scissors. Dr. E. J. TILT uses the latter, and touches the seat of growth with acid nitrate of mercury. The application to them of crystallized acetic acid is said to remove them without pain.

For *caruncle of the urethra*, Dr. WM. GOODELL recommends the actual cautery, as a red-hot knitting needle. The after-treatment is the application twice a week of the undiluted commercial carbolic acid, which will prevent a crop of small growths springing up around the site of the parent growth. When the patient will not submit to the knife or the cautery, the next best procedure is to touch the growth twice a week with crystallized carbolic acid made fluid by heat.

Dr. A. W. EDIS recommends, (*Brit. Med. Jour.*, April, 1874,) a saturated solution of *chromic acid* in these growths, applied as above mentioned for carbolic acid, and afterwards neutralized by pledgets of lint dipped in a strong solution of sodium carbonate.

For non-syphilitic warts and papillomatous growths of the vulva and parts adjacent, Dr. HENRY G. PIFFARD, of New York, (note to PHILLIPS' *Materia Medica*,) has used with the utmost satisfaction a strong tincture of the *arbor vite*, *Thuja occidentalis*, applied to the part three times a day for a week or fortnight.

Dr. GRAILY HEWITT suggests the use of strong nitric acid or lunar caustic. Black wash, or a strong solution of iodide of potassium, should then be applied.

Dr. G. S. BEDFORD removes these excrescences, or when small, sprinkles them once a day with :

1373. R.	Cupri acetatis, Sabinæ,	āā	gr. vj.	M.
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Dr. F. J. BUMSTEAD removes these growths, or, when quite small, touches them with glacial acetic acid, or fuming nitric acid; as the eschar falls, repeating as may be necessary. In obstinate cases, he employs a solution of chromic acid, 100 grains to the ounce. Or, corrosive sublimate, in collodion ℥j. to f.℥j., may be applied over the whole surface. The perchloride or subsulphate of iron often proves useful, applying it once or twice a day to the growth, which shrivels and falls, and a few applications will prevent its return.

Where vegetations are flat and horny, ZEISSL gives:

1374. R.	Acidi arseniisi, Ung. hydrarg.,	gr. ij. ℥j.	M.
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Or,

1375. R.	Arsenii iodidi, Ung. hydrarg.,	gr. ij. ℥j.	M.
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Dr. PETERS, of Prague, has found the simple application of cold poultices to cause these growths to disappear, after they had resisted cauterization and even excision.

VEGETATIONS.

In the treatment of non-syphilitic vegetations of the external genitals, TCHERNOMORDIK advises the employment of Bockhart's caustic lead, prepared as follows:

1376. R.	Oxide of lead, Sol. caustic potash (33 per cent.)	3½ gr. 8 minims.
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This mixture is painted over the vegetations by means of a pledget of cotton wrapped around a small stick. Usually one sitting will suffice. CARO URRIOLA prefers a pigment composed of 2 grains of salicylic acid to 30 grains of acetic acid, applied two or three times in the twenty-four hours.

URETHRAL CARUNCLE.

CHRISTOPHER MARTIN, (*Birmingham Medical Review*, September, 1891) thinks this neoplasm has hardly received the attention it deserves. He classifies it with the vascular tumors. It is exceedingly doubtful whether the connection between the majority of causes usually assigned to it, and the disease, is more than accidental. On the other hand, he thinks it likely that in many cases the exciting cause is a highly acid or irritating condition of the urine. Uric acid is peculiarly responsible for many cases. At the end of each act of micturition, a drop of highly concentrated urine loaded with sharp crystals is left at the meatus. The crystals settle on the mucous membrane, and possibly lodge in the glandular crypts which are so abundant there, and the repeated irritation of their presence determines the new growth. This irritation is partly mechanical, partly chemical. Whether or not it actually causes it, certain it is that after the growth has developed, a highly acid urine frightfully aggravates the patient's sufferings. The great symptom is pain. The suffering is out of all proportion to the size of the growth. The distress is present on walking, passing urine, during coition, or at any time the parts may be impinged upon. The diagnosis is made complete on inspecting the external genitals. On drawing apart the labia, there is seen at the meatus urinarius, or just within it, a small bright crimson growth. It varies in size from a pin's head to a

cherry, but is generally about the size of a pea. It is usually situated on the posterior lip of the meatus. It is very soft and friable, and bleeds readily on manipulation. If carefully prepared sections of a caruncle are examined with a moderate power, the growth is seen to consist of very numerous and widely dilated capillary loops embedded in a delicate connective-tissue stroma. The treatment consists in the *complete* removal of the growth. The patient is anæsthetized and placed in the lithotomy position. An elliptical incision is made in the mucous membrane of the vestibule around the meatus, and about one-sixth of an inch distant from it. By means of fine scissors, this incision is deepened, and the entire lower end of the urethra, for about one-third of an inch of its extent, is separated from the surrounding tissues. The piece of the urethral canal thus isolated is gently drawn down and removed by a snip of the scissors. The edge of the divided urethral mucous membrane may then be united to the edge of the divided vestibular mucous membrane by a few sutures, or the raw surface may be allowed to granulate. Cicatricial stricture may be prevented by the regular passage of a soft bougie. If a stricture should form, it may be easily remedied by slitting the urethra up for about a third of an inch. The prognosis as to the likelihood of recurrence after removal, should be guarded.

J. W. HAMILTON reports two cases treated successfully by injection into the tumors of glycerole of carbolic acid, after brushing the parts with an 8 per cent. solution of cocaine. The relief was immediate and the cure perfect.

VAGINAL CYSTS.

SMITAL advises entire extirpation of the cyst, while LAMMERT recommends that the small hydroceles be left alone, and the radical operation reserved for the larger ones.

In some instances he employs injections of iodine, or of a 3 to 5 per cent. solution of carbolic acid, into the sack after the evacuation of its contents.

Dr. E. DUVEMOZ recommends that they be injected with about six drops of a ten per cent. solution of chloride of zinc. (*Annales de Gynecologie*, April, 1880.)

PRURITUS VULVÆ SEU VAGINÆ. AND VULVITIS.

The most common causes of itching of the vulva are pediculi, irritating vaginal leucorrhœa, dilatation of the lymphatic vessels, eczema, erythema, diabetes, pregnancy, vesical calculus, herpes tonsurans, abnormal growths, cervical endometritis, the presence of small bristly hairs on the vulva, seat worms, *leptothrix vaginalis* and simple nervous pruritus. It is generally symptomatic. In all cases the treatment, when practicable, should be with reference to the causation in the particular case.

PROFESSOR CARL SCHROEDER.

Of actual curative agents, this writer, (*Ziemssen's Cyclopædia*,) can only speak with confidence of:

1377. R.	Acidi carbolici,	gtt. iv-l	
	Glycerinæ,		
	Aquæ,	āā	f. ℥ ss. M.

Apply locally.

He says of this combination: "I am sure that whoever has once tried this, will never return to any of the other remedies which have been recommended."

A. C. GARRATT, M. D., BOSTON.

1378. R.	Acidi hydrocyanici (Scheele's),	f. ℥ ij	
	Liquoris plumbi subacetatis,	f. ℥ iv	
	Aquæ,	f. ℥ iiij.	M,

As a local application.

Dr. HORATIO R. STORER, of Newport, R. I., states that he has long given great comfort in this affection, by Oldham's ointment of hydrocyanic acid and acetate of lead, with cocoa butter.

Dr. G. S. JONES, of Boston, has employed with benefit, in pruritus of the vulva, the following:

1379. R.	Sodii biberatis,	℥ j	
	Camphoræ,	℥ j	
	Olei gaultheriæ,	gtt. xxx	
	Aquæ bullientis,	Oij.	M.

When cool, pass through a cloth. To be used cold, as a wash for the parts, and as an injection into the vagina.

For pruritus, produced by irritating leucorrhœal discharges, Dr. A. R. JACKSON, of Chicago, has used, with gratifying results, the following:

1380. R. Zinci sulpho-carbolatis, $\frac{\text{℥}}{3}$ ss
 Aquæ, f. $\frac{\text{℥}}{3}$ viij. M.
 Wash the parts twice daily, leaving it to dry upon the surface.

PROF. MONTROSE A. PALLAN, M. D., NEW YORK.

This gynecologist has found pruritus pudendalis in pregnancy to yield in nearly every instance, except when it depends on trophic neuric causes, to the application of *thymolized clay*.

1381. R. Thymol, gr. xv
 Vaseline, gr. xxx
 Powdered brick clay, $\frac{\text{℥}}{3}$ iij
 Dissolve the thymol in the vaseline, and rub it up with the clay.

This is introduced into the vagina or applied to the pruritic parts, to be washed out every day or two and replaced. Herpes, eczema, and kindred affections, so often encountered in the later months of gestation, are similarly benefited by this antiseptis, more particularly if produced by the acrid discharges from the cervix and vagina. (*Richmond and Louisville Med. Journal*, 1878.)

J. C. WEBSTER (*Edinburgh Medical Journal*, May, 1891) concludes that the only sure cure in a majority of cases of pruritus, is extirpation of the affected parts. His operation consists of the removal of a spindle-shaped mass of tissue, extending from half an inch above the clitoris as far down as a point midway between the glans and the urethral orifice, the removed portion consisting mainly of the greater portion of the clitoris and the upper part of the nymphæ.

CHOLMOGOROFF has employed the constant electric current in a very obstinate case of pruritus, with a perfect cure in six weeks time.

Applications of twenty milliampères for ten minutes was repeated on alternate days, suspending the treatment during the catamenial period.

W. FREDERICKS reports a case cured by applications of Churchill's tincture of iodine twice a week.

DR. H. HILDEBRANDT, OF KÖNIGSBERG.*

Pruritus Vaginæ. (Of prime importance in obstinate cases, is a careful regulation of the life. The diet should be light, principally of vegetables, without stimulants, and the bowels regular. The bed should be cool, and the genitalia frequently washed, but cold sitz-

* Part VIII. of Billroth's *Handbuch der Frauenkrankheiten*.

baths are not advantageous. During the night a compress, wet with black wash, should be applied, and during the day the parts should be anointed with equal parts unguentum plumbi and unguentum belladonnæ. Or the following, especially in girls with a tendency to masturbation, will be efficient:

1382. R.	Potassii bromidi,	gr. xxx	
	Hydrarg. chlor. mitis,	gr. xlv	
	Lupuline,	gr. xxx	
	Olei olivæ,	℥ j.	M.
For local use.			

When the sleep is disturbed by the itching in spite of these applications, BEIGEL strongly recommends a hypodermic dose of morphia; but our author has found decidedly more improvement from twenty or thirty drops of tinct. *cannabis indica* than from any other anodyne.

All these and most other measures fail in not a few obstinate cases. In such the anti-pruritic applications extolled by various authors may be tried, but will often prove of no avail. In these we must have recourse to more decided measures. Of these, Dr. H. has derived signal advantage from two. They are *cauterization with solid nitrate of silver* and the use of the *alum tampon*. He takes a tampon or wedge of wadding and anoints it thoroughly with the following:

1383. R.	Aluminis,	℥ ij.-ijj	
	Adipis,	℥ j.	M.

This is introduced into the vagina and allowed to remain six to twelve hours. It is then withdrawn and the cavity rinsed out with a mild alum injection. It is a modification of a method recommended by SCANZONI.

Cauterization of the parts is performed by applying the stick freely to the whole upper part of the introitus, drying it with charpie, and counteracting the rather severe pain which generally follows by cold compresses.

Vulvitis. The general treatment of inflammations of the vulva involves repose, cleanliness, keeping the parts dry and preventing friction. In acute catarrh of the vulvæ, warm sitz-baths and fomentations with warm lead-water are required. In chronic cases, compresses wet with black wash, painting with nitrate of silver, and the use of lead or zinc ointment are called for.

In certain obstinate cases, especially after gonorrhœal catarrh, the inflammation persists in the glands of Bartholin and in the lacunæ, which, to the number of fifteen or twenty, are found in the vulvar mucous membrane. Close examination will reveal a localized redness at these points. Direct treatment is here required; a pointed pencil of nitrate of silver is to be inserted into these depressions of the mucous membrane and their interior thoroughly stimulated.

In *vulvar folliculitis*, a not uncommon form of vulvitis, appearing on the labia majora and leading to irritation, acne-like pustules, and even to small abscesses, the treatment should begin with warm sitz-baths, followed by warm poultices, the abscesses being opened early when they appear.

Eczema Vulvæ. The treatment of acute eczema in its first stage, consists in the application of warm poultices of bruised meal, which usually promptly diminish the burning pain, pain, redness and tenderness of the skin. When these have disappeared the parts may be dusted with:

1384. R.	Zinci oxidi, Amyli pulv.,	gr. xxiv 3j.	M.
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When dry crusts have formed and there is no longer a fresh wet secretion, it will usually be sufficient to complete the cure by anointing with:

1385. R.	Hydrarg. ammoniatæ, Axungiæ,	℥ij 3j.	M.
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For an ointment.

The patient should be persuaded to keep her bed until the cure is complete, to refrain from scratching the parts, and if the itching is unbearable she should be given an anodyne.

In chronic eczema, the hard crusts should be removed by oiling and warm baths, or, in old cases, by covering the part for half an hour with compresses soaked in a solution of caustic potash, one part to three hundred of water. Following this, the white precipitate ointment should be applied. The tar preparations are also useful in these cases.

DR. TAUSZKY, OF NEW YORK.

In cases where the pruritus depends upon erythema intertrigo, acne, eczema, or prurigo, produced by vaginitis, or endometritis, this

writer (*Medical Record*, September, 1880,) recommends warm injections of flaxseed tea, with a solution of the aqueous extract of opium, together with a sitz-bath, lukewarm, twice daily, for twenty or thirty minutes, and the subsequent irrigation of the vagina by means of a fountain syringe, and the following.

1386. R. Zinci sulpho-carbolatis, 3^{ss}
Aque, Oij. M.

For an injection; to be used every two hours, while the patient lies in a horizontal position, with her hips well raised.

After each vaginal irrigation, a tampon of carbolized or salicylated cotton, with some unguent and belladonna is introduced into the vagina so that it prevents the external parts from being bathed in the secretions, often mucous, sometimes muco-purulent—which cause the excoriations at and around the vulva, the nates, and the inside of the thighs—and directing the patient to use in the evening, and also for one hour in the afternoon, applications of black wash—aqua phagedenica nigra. Where the pruritus or prurigo disturbs the patient's sleep, a hypodermic injection of morphia is given.

The pruritus itself is greatly relieved, besides the above medication, by application of dilute tincture of iron or a twenty per cent. solution of carbolic acid. The most useful of all applications, however, for pruritus vulvæ, is the *balsam of Peru*, of which the following formula is effective:

1387. R. Pulv. acaciæ, 3ij
Balsami Peruviani, 3j
Olei amygd. dulc., 3jss
Aque rosæ, 3j. M.

Apply freely, with a camel's-hair brush, eight or ten times a day, to the itching part.

This prescription was first suggested by HUFELAND. If the pruritus vulvæ is dependent upon diabetic urine, Dr. T. has found extremely beneficial, in addition to the means herewith recommended, the daily internal use of from six to eight drachms of glycerine, in teaspoonful doses. If dependent upon granular vaginitis, he is in the habit of touching each granule, after first scraping it off with the curette, with an exceedingly fine point of nitrate of silver.

LINIMENTS.

1388. R. Chloroformi, gtt. xlv
Olei amygdal. dulc.,
Olei cadini, āā f. 3vj
Tinct. opii, gtt. xv. M.

- | | | | | |
|--|----|----------------------|-------|---------|
| 1389. | R. | Extracti opii, | | |
| | | Extracti belladonnæ, | āā | gr. iij |
| Dissolve in the smallest quantity of water possible, and add : | | | | |
| | | Potassii bromidi, | 3j | |
| | | Glycerinæ, | ss i. | M. |

LOTIONS.

- | | | | | |
|-------|----|---|---------------------------|----|
| 1390. | R. | Hydrargyri chloridi corrosivi,
Aluminis,
Glycerinæ,
Aquæ destillatæ, | gr. ss.
vj
ij
x. | M. |
| 1391. | R. | Morphiæ muriatis,
Boracis,
Aquæ chloroformatæ (saturat), | gr. j.
iiss
x. | M. |
- Apply locally, several times daily.

In some rebellious cases, a residence at a mildly alkaline and sulphurous spring, will bring about a cure. For those who cannot accomplish this, the following may be used at home :

SULPHURO-ALKALINE BATH.

1392. R. Polysulphuret of sodium,
Bicarbonate of sodium,
Water, for a bath.

E. J. TILT, M. D., LONDON.

Eczema Genitale. Irritation and pruritus of the genitals is not unfrequently owing to an eczematous condition of their surface. This is especially the case in fat women of middle age with gouty antecedents. As lotions or as injections, when the eczema extends to the inner surface of the vagina, the following prescriptions are recommended:

1393. R. Bismuthi subnitratis, 3iij.
Pulv. tragacanth., 3j.
Aquæ, O ss. M.

Or,

- | | | | | | |
|-------|----|--------------------------|----|---------------|----|
| 1394. | R. | Zinci oxidi, | āā | 3 ij | |
| | | Calaminæ prep., | | | |
| | | Acidi hydrocyan. diluti, | āā | f. 3 ij | |
| | | Glycerinæ, | | ad f. 3 viij. | M. |
| | | Liquoris calcis, | | | |

Or,

- | | | | |
|-------|----|--------------|-----------|
| 1395. | R. | Zinci oxidi, | 3j |
| | | Glycerinæ, | |
| | | Aquæ calcis, | aa f. 3j. |

Rub up the zinc with the glycerine, and add the lime-water.

These lotions should be applied several times a day, and the parts may be anointed with petroleum ointment. Constitutional treatment addressed to the diathesis is very important in these cases.

NOTES ON REMEDIES.

LOCAL APPLICATIONS.

Acidum Boracicum is praised in the diabetic form.

Acidum Sulphurosum. Lotions and injections of sulphurous acid have been found effective in cases dependent on vaginal discharges.

Aconitia, in ointment, is approved by Dr. T. H. TANNER.

Aluminii Nitræs. Dr. GILL, of St. Louis, in the *St. Louis Medical and Surgical Journal*, recommends the use of nitrate of aluminium. It has in his hands, given more satisfaction than any other remedy. He orders four to six grains to the ounce of soft water, to be used as a vaginal injection or external wash, once or twice a day if necessary.

Ammonii Murias, in the following ointment, is useful :

1396.	R.	Ammonii chloridi,	3j	
		Pulveris helleboris albæ,	3ss	
		Adipis,	3iij.	M.

Ammonia Aqua sometimes succeeds in obstinate cases like a charm, when injected in diluted form into the vagina :

1397.	R.	Aquæ ammoniæ,	f. 3ss-j	
		Aquæ,	Oss.	M.

To be freely injected into the vagina.

Aqua Calcis, applied warm, together with perfect rest and light clothing, will sometimes afford the desired relief.

Aqua Ferrida. One of the most efficient means of relieving the pruritus occurring in pregnancy is hot water, applied by means of flannel cloths wrung out of that fluid and laid upon the parts.

Argenti Nitræs. Dr. GRAILY HEWITT, of London, states that in obstinate cases a rather strong cauterization of the os uteri, with the solid nitrate, will sometimes succeed when other measures fail. Dr. CHARLES (*Annales de Gynécologie*) also speaks most highly of the application of the solid nitrate of silver in the treatment of vulvar pruritus. The seat of the itching is oftenest near the clitoris, or in the nymphæ, sometimes at the margin of the anus. It is necessary to cauterize freely, passing the crayon two or three times over the affected surfaces, and even somewhat beyond them. Dr. CHARLES states that he has found, with out a single exception, great relief from the first cauterization, often a complete cure. Sometimes it is necessary to

recur to the cauterization a second or third time after some days. Dr. TILT rubs the parts for several minutes with a piece of cotton soaked in a forty-grain solution of silver nitrate.

Camphora, in powder, with starch, dusted over the parts, sometimes removes the distressing symptoms.

Carbolicum Acidum is exceedingly efficient in very many cases.

Chloral, by Prof. J. R. BLACK, of Ohio.

Balsamum Peruvianum. An excellent prescription is :

1398. R.	Pulv. acaciæ,	3ij	
	Peruvian balsam,	3j	
	Oil of almonds,	3jss	
	Rosewater,	3j.	M.

SIG. Apply freely with a camel's-hair brush, eight or ten times a day, to the itching part.

1399. R.	Chloralis,	3iij	
	Aquæ,	f. 3iv.	M.

Apply locally.

In cases of pruritus vulvæ, where the cause seems to be attributable to irritation, simply, of the nerves, whether in the pregnant condition or otherwise. Dr. C. O. WRIGHT, of Cincinnati, (*American Journal of Obstetrics*, July, 1879,) states that he knows of no remedy equal to the local application of chloral hydrate, either in solution or in the form of an ointment. Here it acts by direct contact, producing an anæsthetic influence upon the peripheral extremities of the nerves, and acting by reflex action upon the nerve itself.

This latter prescription was first suggested by HUFELAND.

Chloroformum. Dr. GRAHLY HEWITT, of London, obtains the greatest benefit from the application of :

1400. R.	Chloroformi,	f. 3ss	
	Olei amygdalæ,	f. 3iij.	M.

Creosotum. A weak solution is sometimes useful.

Ergota, equal parts of the fluid extract and of glycerine, has proved effective in many cases. (*Medical Annals*, April, 1880.)

Ferri Chloridi Tinctura, in varying strength, will often be valuable. BYFORD recommends ʒj. to water O j., and adds that it is especially useful where there is no eruption, and when there is leucorrhœa and a congested dark appearance of the mucous membrane.

Hydrargyri Oxidi Rubri Unguentum, well diluted with cod-liver oil, is frequently an effectual application.

Hydrargyri Chloridum Corrosivum. The favorite formula of ERASMUS WILSON, of London, is the following :

1401. R. Hydrargyri chloridi corrosivi, gr. v.-x
 Spiritus rosmarini, āā f. $\frac{3}{4}$ j
 Alcoholis, f. $\frac{3}{4}$ vj. M.
 Mistura amygdalæ amaræ,

Another formula, said to be effective, is given by Dr. MILTON.
 (*Medical Press*, March 11th, 1868) :

1402. R. Hydrargyri chloridi corrosivi, gr. iv
 Bismuthi oxidi, gr. xxx
 Acidi hydrocyanici diluti, m xxx
 Liquor calcis, ad f. $\frac{3}{4}$ viij. M.

Apply warm, twice or thrice daily.

Hydrargyri Chloridum Mit. A drachm of calomel in an ounce of lard is a soothing application.

Hydrargyri Unguentum is advised locally, by Dr. RINGER, of London.

Hydrocyanicum Acidum Dilutum is recommended, largely diluted, by Dr. WEST, of London. It must not be applied too freely, nor over abraded surfaces :

1403. R. Acidi hydrocyanici diluti, m x.-xl
 Glycerinæ, f. $\frac{3}{4}$ j. M.

Iodum. The tincture, locally applied, often affords relief.

Iodoformum. An ethereal solution of iodoformum, used as a spray, or an ointment of iodoform, will often be found very serviceable.

Menthæ Oleum or *Essentia*. In the *Medical and Surgical Reporter*, vol. XL., a writer reports a most obstinate case promptly relieved by the occasional application of essence of peppermint.

Morphia, subcutaneously, deserves trial in severe cases.

Olivæ Oleum, spread over the parts with a feather, sometimes allays the pruritus.

Pix Liquida. A glycerole of tar sometimes succeeds :

1404. R. Glycerine,
 Tar, āā $\frac{1}{2}$ lb
 Starch, $\frac{1}{2}$ oz.

Heat the tar and glycerine separately, rub up the starch with the glycerine, mix, bring to the boiling point, and cool.

Plumbi Subacetatis Liquor Dilutus. The following soothing application is a useful one :

1405. R. Liquoris plumbi subacetatis diluti, f. $\frac{3}{4}$ j
 Tincturæ hyoscyami, f. $\frac{3}{4}$ ij
 Misturæ camphoræ, f. $\frac{3}{4}$ viij. M.

To be applied tepid. Rest and an antiphlogistic regimen are at the same time to be ordered.

Potassii Carbonas, \mathfrak{z} ij to water \mathfrak{z} iv., was recommended by TROUSSEAU.

Potassii Iodidum. When a syphilitic taint is present, this drug will often promptly remove the irritation.

Sodii Boras. The following formula is advised by Dr. WEST, of London :

1406.	R.	Sodii boratis,	3 iv	
		Morphiæ muriatis,	gr. viij	
		Aquæ rosæ,	f. 3 x.	M.

Sodæ Chlorinatæ Liquor, diluted, has been employed with success :

1407.	R.	Liquoris sodæ chlorinatæ,	f. 3 vj	
		Aquæ,	f. 3 xij.	M.

Sodii Sulphis, has been favorably reported on :

1408.	R.	Sodii sulphitis,	3 j	
		Aquæ,	f. 3 iij	
		Glycerinæ,	f. 3 j.	M.

Tabacum. Dr. TANNER recommends a lotion of an infusion of tobacco, ʒij to a pint of boiling water.

Tanacetum. A poultice of tansy leaves, applied as hot as the patient can bear it, is said by Dr. R. L. BUTT, of Alabama, to be efficient in obstinate cases. (*American Practitioner*, August, 1877.)

Thymol may be tried. (See above.)

Zinci Oxidum. For erythema and pruritus vulvæ, Dr. BRAUN-FERNWALD, of Vienna, recommends

1409.	R.	Unguenti petrolei,	5 grammes	
		Unguenti cetacei,	3 "	
		Zinci oxidi,	3 "	M.

An ointment for local use.

CYSTITIS.

The principal local signs of inflammation of the bladder are pain, tenesmus, and frequent desire to urinate, followed by straining as if the organ had not been fully emptied. The pain is usually a dull ache in the perinæum and the sacrum. Frequently the color and odor of the urine are little changed; mucous sediment is usually present.

The frequent urination differs from that seen in pregnancy and prolapsus by not diminishing when the recumbent position is assumed. The presence of tenesmus differentiates it from that witnessed in abdominal tumors, pelvic peritonitis, and inflammations of the urethra. Palpitation and percussion of the abdomen will develop tenderness of the bladder, if it exists. The catheter or sound will distinguish cystitis from the pressure of stone or other foreign

body in the bladder. And the endoscope affords a means of ascertaining the exact appearance of the interior of the bladder and urethra.

Dr. E. J. TILT observes: "What one man calls chronic cystitis, another calls irritable bladder," so closely, in many instances, do these conditions shade into each other.

E. J. TILT, M. D., OF LONDON.

The first thing to do in an attack of ordinary acute cystitis, is to put the patient to bed; give a warm hip-bath and warm vaginal injections; and if the pain is severe, leech the abdomen and cover with an anodyne poultice. A rectal suppository of opium, gr. ij., will give ease, and gr. v.-x. of extract of hyoscyamus a day, in pill form, is not to be omitted. The urine should be rendered bland by alkalies, and the patient should drink freely alkaline and mucilaginous fluids.

Cystitis may be caused by pelvic peritonitis, by tumors of the womb or ovaries, by prolapse, procidentia, etc. In such cases these conditions must be remedied before permanent relief of the vesical inflammation can be expected.

A. J. C. SKENE, M. D., OF NEW YORK.

Existing constipation should be overcome by the free use of saline laxatives. The diet should be carefully regulated. An exclusive milk diet has been found sufficient to cure some chronic cases.

Benzoic acid is perhaps the drug that will be found the most useful in the earlier stages in the largest number of cases. It often seems to act as a specific, giving speedy and permanent relief.

1410. R.	Acidi benzoici,		
	Sodii biboratis,	āā	gr. x
	Infusi buchu,		f. ℥ ij.
This amount three or four times a day.			M.

The borax is added to insure the solution of the acid. *Benzoate of ammonia* is more palatable, and acts equally well in the same dose.

In the more advanced stages of the disease, balsam of Peru, copaiba, and oil of turpentine, are important remedies. They should be given in capsules, the same as in gonorrhœa. When the pain is not severe and the urine is loaded with mucus and pus, astringents should be given, as the following, which Dr. S. has employed with good effect:

1411. R. Extracti buchu fluidi, f. $\frac{3}{4}$ ij
 Tincturæ conii, f. $\frac{3}{4}$ j
 Morphine sulphatis, gr. iss. M.
 A teaspoonful every three or four hours.

The salicylate of sodium and the sulpho-carbolates have been exhibited with advantage.

In old and obstinate cases, the bladder must be washed out and medicated injections used. Of these, the following may be employed to relieve pain :

1412. R. Chloral hydratis, gr. x.-xv
 Aquæ, f. $\frac{3}{4}$ j. M.
 For an injection in this proportion.

As astringents and alteratives, nitrate of silver, sulphate of zinc, tannic acid, or acetate of lead, of either beginning with gr. i.-ij. to water f. $\frac{3}{4}$ j., are the most efficient. When the urine is alkaline and offensive from long retention, nitro-hydrochloric acid, gtt. ij. to water f. $\frac{3}{4}$ j., should be used.

In obstinate cases, nitrate of silver, gr. xx. to water f. $\frac{3}{4}$ j., is one of the most reliable remedies. Of this strong solution not more than five or ten drops should be used at a time.

As a last resort in painful and incurable cases, Dr. EMMET has established an artificial vesico-vaginal fistula, which maintains complete drainage, and is sure to relieve, and perhaps will cure. The same object may be accomplished at times by a permanent catheter.

PROF. DR. F. WINCKEL, OF DRESDEN.

This author, (*Handbuch der Frauenkrankheiten*), begins his observations on treatment by recommending the greatest care in cases predisposed to cystitis. The diet and drink should be mild, stimulants and acids avoided. Mild cathartics are preferable to injections, and the abdomen and lower extremities should be kept warm. Of special importance in puerperal cases is it that each woman should have her own catheter. He believes that the use of a common catheter frequently extends the disease from patient to patient.

Cystitis. (*Archives of Gynæcology, Obstetrics, and Pædiatrics*, July, 1891).

The editor, Dr. GOELET, in commenting on the treatment as outlined in a paper by GAUBET (in the *Archives de Tocologie et de Gynæcologie*, January, 1891), states that the best urinary antiseptic is oil of winter-green, given in four or six-drop doses in capsules

four times a day. It will sterilize the urine in a few hours and keep it so as long as the remedy is administered. GAUBET uses salol as the best means of producing an antiseptic condition of the urine—from half a drachm to a drachm and a half during the day. It is most efficient in the purulent catarrhs of the bladder. Dr. GOELET states that it is a mistake to give alkalies in cystitis when there is pus in the bladder.

Leucorrhœa. (*Archives of Gynecology, Obstetrics, and Pediatrics*, July, 1891).

The editor, Dr. A. H. GOELET, in commenting upon the treatment of the gonorrhœal form, advises injections of creolin solution or sulphate of zinc in preference to a strong solution of bichloride. He also advises that once a day the vagina be dusted thoroughly with iodoform, aristol, or boracic acid, and one or two loose tampons, well coated with vaseline, may be introduced to prevent contact of the inflamed surfaces.

Peroxide of hydrogen will prove a good cleansing agent.

W. C. GALLOWAY prefers to all others the method of dilution of the urethra, and applications of glycerite of carbolic acid to the vesical mucous membrane in cystitis. This procedure has been successful in his hands when all else has failed.

When a catarrh of the bladder has once begun, the experience of many years has taught him that the *local treatment* is all-important. He begins with washing out the bladder with warm water, then with linseed tea, to which one part in a thousand of salicylic acid may be added. The injection should be the temperature of the body, and amount should vary from a quarter to one litre, according to age and size. This is to be repeated two or three times a day, and continued according to circumstances, perhaps for weeks.

Should the above injections fail to answer the purpose, he would have recourse to those of nitrate of silver or tannin, as :

1413.	R.	Argenti nitratis, Aquæ,	gr. i.-iij ℥ j.	M.
1414.	R.	Acidi tannici, Aquæ,	gr. iij.-xv ℥ j.	M.

He has never had occasion to use any other means than the above in order to effect a cure. The balsams, especially copaiva, he has not been called upon to try.

It is of great importance in the treatment of this disease that the

patient be not permitted to retain her urine for any long time. She should be obliged to empty the bladder at regular intervals, and unless it is completely done, the catheter should be inserted. General warm baths are very grateful, and as drinks she may use milk of almonds and Vichy, soda or other alkaline waters.

S. F. GILBERT, M. D., OF ELYSBURG, PENNSYLVANIA.

In severe cases, the use of injections of tannic and salicylic acids into the bladder, is recommended by this writer. (*Med. and Surg. Reporter*, March 24th, 1879.) After washing out the bladder with warm water, several times, he throws in the following:

1415. R.	Acidi tannici,	gr. x	
	Acidi salicylici,	gr. ij	
	Aquæ,	f. ʒ iv.	M.

For an injection. Retaining it ten or fifteen minutes, then removing it and again washing the bladder out with warm water, to prevent the hardening of blood or mucus by the acids.

GRAILY HEWITT, M. D., LONDON.

The timely use of the bladder, after labor, will prevent that destructive *cystitis*, which may be produced by inability to evacuate the bladder. When it is present, with fever, pain, and tenderness, leeches may be required. Demulcent liquids, as barley-water, should be used, and all irritants avoided. *Rest* is exceedingly important. In the *chronic* form, it is best treated with *diluted mineral acids*; *uva ursi* and *parcira brava* are serviceable in combination with diluted nitro-muriatic acid. Sir HENRY THOMPSON used a decoction of the *triticum repens*, in the male, with great good results, and Dr. HEWITT has found it of equal service in women. He has seen great benefit from counter-irritation just above the symphysis. The general treatment is important. Some require liberal diet, others the reverse.

PROF. ROBERT BARNES, M. D., LONDON.

Diminish the irritating qualities of the urine; everything known to promote dyspepsia and lithiasis or oxaluria, must be avoided. Demulcents, then tonics, may be used. If lithiasis is present, use alkalies, as soda, potassa, or lithia. More commonly, there is the phosphatic condition, with ammoniacal urine; here give mineral acids and tonics in moderate doses. Warm baths often afford great relief where there is great pain or spasm.

(For a full discussion of the means of relief in cystitis, see NAPHEYS' *Surgical Therapeutics*, 7th ed.)

URETHRITIS.

E. J. TILT, M. D., OF LONDON.

When the difficulty or pain of micturition is not relieved by diluents, warm hip-baths, and poultices, urethritis may be suspected. In this case, the urethra can be felt with the finger to be round, solid, enlarged, and painful to the touch. Cooling injections and mucilaginous drinks are called for, and if these do not answer, a *tannin bougie* should be introduced into the urethra three or four times, at five days' intervals.

Tannin bougies are made by dipping medium-sized bougies into gum-water, powdering them with tannin, letting them dry, and after rubbing off the roughness, dipping them in gum-water previous to using them.

In the event of these failing, a stick of nitrate of silver may be rapidly passed into the passage.

DR. L. DE SINETY.

This author, as previously observed believes nearly all cures of urethritis in the female to be of specific origin. With other observers, he has found that the balsams have little influence on this disease in the female. Local baths and urethral injections of weak carbolic acid lotions will often suffice; in more rebellious cases, astringent injections of tannin, sulphate of zinc, or acetate of lead, or perhaps better, a solution of nitrate of silver, gr. j.—ij. to aquæ f. 5j. If the disease resists, the surgeon may introduce into the whole length of the urethra a pencil of nitrate of silver, withdrawing it after a few seconds. This is a painful expedient, and may be followed by dysuria, but is effective. Another topical means is to introduce astringent bougies, and let them dissolve in the urethra, as :

1416. R.	Pulv. tragacanth.,	3j	
	Acidi tannici,	gr. xv.	
	Bismuthi subnitratiss,	q. s.	M.
For a urethral bougie 5 centimetres long.			

A. J. C. SKENE, M. D., BROOKLYN, N. Y.

Diseases of the Urethral Glands. It has been pointed out by this gynecologist, (*Proceedings of the Medical Society of the County of Kings*, December, 1880,) that upon each side, near the floor of the female urethra, there are two tubules large enough to admit a No. 1

probe of the French scale. They extend from the meatus urinarius upwards, from three-eighths to three-quarters of an inch, parallel with the long axis of the urethra. They are located beneath the mucous membrane in the muscular walls of the urethra. The mouths of these tubules are found upon the free surface of the mucous membrane of the urethra within the labia of the meatus urinarius; they terminate in branched glands.

These glands are subject to catarrh, gonorrhœal and strumous inflammation, and tuberculosis, giving rise to extreme tenderness, painful micturition, great discomfort in sitting and walking, sometimes sharp pains and vaginismus and ulceration.

The treatment required is to *lay open the tubules throughout their whole length, and to keep them open*. In the majority of cases, it is all that is required to effect a complete cure. The method of operating is as follows: The patient is placed upon the left side, and a Sims speculum used to keep the labia apart and retract the perinæum. This brings the parts well into view and within easy reach of the operator.

The position and depth of the tubules having been first ascertained, the probe-pointed blade of a very fine scissors is then introduced, and the posterior wall divided its whole length. To prevent the parts from re-uniting, a small piece of cotton, saturated with *persulphate of iron*, should be packed in between the divided edges. Brushing the surfaces over with the iron, without using the cotton, will answer, although less certain to prevent re-uniting. Very little after-treatment is required. In the majority of cases, recovery follows the operation of laying open the canals. Sometimes the inflammation lingers in a modified form, but yields to a few applications of nitrate of silver or sulphate of zinc. In several cases in which the excrescences were abundant, they remained after the operation, although very much reduced in size. An application of nitric acid destroyed them, and they have not shown the least disposition to return.

A. W. SAXE, M. D., OF CALIFORNIA.

This writer describes *catarrhal* as *urethritis* distinguished from gonorrhœal inflammation, first, by the history of the case and moral probabilities; second, by the absence of tenesmus in most cases of the gonorrhœal variety; and third, by the absence of that profuse muco-purulent discharge which is inseparable from the early stages of the gonorrhœal disease.

It would be difficult to say what remedies *have not* been used in the treatment of this affection in its various stages and phases. The catalogue includes nux vomica, pareira brava, buchu, uva ursæ, vaginal injections and suppositories, opiates, prussic acid, copaiba, and cubebs, and lately, the injection of normal urine into the bladder, etc., etc. (*Pacific Med. and Surg. Journal*, April, 1874.)

His plan of treatment is as follows:

- 1st. Horizontal position in bed indispensable.
- 2d. Hot applications to the feet, with hot diluent drinks, so as to induce diaphoresis, if possible.
- 3d. The administration, every two hours, of the following:

1417. R.	Hydrarg. chlor. mitis,	gr. xxxvj	
	Pulv. ipecac.,	gr. viij.	M.

Divide in chart. No. xij. SIG.—Dose one powder in a little syrup every two hours, until six are taken. Then follow with decoct. sennæ, q. s., to induce action and free evacuation of the bowels. Diet very light and simple; drinks, mucilaginous; decoctions of elm bark or flaxseed are best, and are rendered palatable by the addition of a little orange peel, sugar, tartaric acid, or lemon juice.

The only sedative or anodyne admissible is a cold, wet napkin to the vulva, changed sufficiently often to insure a low temperature. Opiates are injurious. Chloral hydrate, gr. xv. to xx., at night, less objectionable, is seldom necessary.

If, after the first twelve hours, and after the bowels have been freely evacuated, there is still much pain in passing the urine, or if there is any tenderness or tenesmus, the remaining powders should be given and followed by the laxative as before, after which it will be, in general, only necessary to keep the patient in bed for a few days, and to see that the bowels are kept open by neutral or alkaline salts every morning. This, with moderately improved diet and mucilages, will insure a perfect and speedy recovery.

The pulverized ipecac. is a very important adjuvant to the alterative, but the quantity must be restricted to the tolerance of the stomach: a half grain will be sufficient in all delicate stomachs, and in many it will be too much. But whatever the stomach will tolerate without emesis, is the maximum.

THOS. ADDIS EMMET, M. D., NEW YORK.

Keep the patient recumbent, the bowels free by salines, and the urine bland. Use hot-water vaginal injections and warm sitz-baths. Also, wash out the urethral tract several times a day with warm water. After washing out the urethra, the extract of *pinus canadensis*

sis, to which a little impure carbolic acid has been added, should be thoroughly applied. Sometimes the application of a weak solution of nitrate of silver, or of impure carbolic acid, will be found useful. As the case improves, vaseline or a little tannin and glycerine will protect the parts sufficiently.

URINARY DISORDERS—IRRITABLE BLADDER DY-SURIA, POLYURIA, ISCHURIA, ETC.

The functional disorders of the bladder are divided into the following forms:

1. *Polyuria*—frequent urination and in considerable quantity.
2. *Ischuria*—difficult urination and imperfect emptying of the bladder.
3. *Dysuria*—painful urination.
4. *Enuresis*—incontinence of urine.
5. *Vesical tenesmus*—spasmodic pain after urination is completed.
6. *Vesical Irritability*—frequent and painful micturition, with the passage of very little urine.

PROF. WM. GOODELL, M. D., PHILADELPHIA.

In almost every form of vesical irritation, belladonna and its alkaloid, atropia, are valuable remedies. Dr. GOODELL generally gives it according to the following prescription, which he can recommend:

1418. R.	Atropiæ,	gr. j	
	Acidi acetici,	gtt. xx	
	Alcoholis,		
	Aquæ,	āā	f. 3 iv. M.

Four drops before each meal in a wineglassful of water. To be increased or diminished according to the constitutional effect.

In that form of irritability which consists in an inability to hold the water on slight exertion, such as coughing, laughing, running, etc., the cause is generally relaxation of the fibres. Ferruginous preparations are here demanded, and with them the best remedy is a combination of tincture of belladonna, tincture of nux vomica and fluid extract of ergot. If this fails, the next resort would be the application of carbolic or even nitric acid to the urethra, with proper hygienic treatment.

A. J. C. SKENE, M. D., OF BROOKLYN.*

Where the irritability is a pure neurosis, the general system demands most attention. Tonics, a well-ordered diet, change of scene and cheerful company, are required. The bowels should be kept moderately open, and small doses of strychnia administered. Locally, a cup of warm hop-tea containing twenty to forty drops of laudanum may be injected into the rectum, or an opium suppository combined with belladonna or hyoscyamus; or the following:

1419. R. Chloralis, gr. xv
Aque, f. ℥ j-ij. M.
For a rectal injection.

Masturbation, malaria and hysteria, are occasional exciting causes of the complaint, and demand appropriate treatment. Abnormal conditions of the urine are also frequent causes. In all cases the urine should be tested. If acid, alkalies are required. In excessive acidity with deposits of uric acid, the following is a very efficient combination:

1420. R. Potassii bicarbonatis, aa ℥ ss
Potassii citratis, ℥ iv. M.
Syrupi,
Take a teaspoonful in half a tumbler of water, adding ℥ j of lemon juice. Drink while effervescing.

In oxaluria the following prescription is looked upon by many as almost a specific:

1421. R. Acidi nitro-muriatici diluti, ℥ v-vj
Tincturæ nucis vomicæ, ℥ iij
Olei gaultheriæ, ℥ xij
Aque, ad f. ℥ iij. M.
A teaspoonful in water before each meal. Many of the slightly alkaline mineral-spring waters will also be found of use.

DR. JOHN S. WARREN, OF NEW YORK.

Dysuria is a common complaint among females, and may be owing to vascular growths about the urethral meatus, inflammatory affections of the urethra, anteflexion, etc. (*N. Y. Medical Journal*, 1878.)

The growths are of all sizes and forms, varying from a slightly congested and hypertrophied condition of the mucous membrane of the canal to the size of a full-grown raspberry, to which, indeed, it bears no small resemblance. It is generally situated at the meatus

**Diseases of the Bladder and Urethra in Women*, New York, 1878.

externus, and, therefore, readily discoverable by an ocular examination after separation of the labia, though not infrequently it is a little further distant within, and in such cases he has made use of the ordinary ear-specula for their detection and treatment. This tumor may be pedunculated or sessile in growth, is a bright scarlet color, easy to tear and bleed, and, as a rule, exquisitely tender and sensitive to the touch; so that urination, coition, friction from clothing or from washing, give the most intense pain and suffering.

The treatment for the removal of these painful growths is excision by the scissors, cauterization by the actual cautery, nitric or carbolic acids, the silk ligature, and the snare—the one used for aural purposes is best adapted, and is especially used when the caruncle is situated some little distance from the meatus; here, too, the ear-specula or glass tube is very useful for caustic application to the diseased portion of the urethra; for when the growth is sessile in character, its complete destruction by a powerful escharotic, like nitric acid, or the actual cautery, is necessary.

DR. BRABAZON.

Irritable Bladder. In this annoying complaint, this writer (*Brit. Med. Jour.*, 1879,) has found the following injection of great service:

1422. R.	Argenti nitratis,	gr. ij	
	Extracti belladonnæ,	gr. vj	
	Aquæ destill.,	f. ʒ ij.	M.

For an injection. This solution should be injected twice a week, and allowed to remain in the bladder for about from three to five minutes, and then withdrawn through the canula. Several months may be necessary for a cure.

DR. J. HALLIDAY CROOM, OF EDINBURGH,

Sums up the causes leading to *retention of urine* in the female, as follows:

1. Injuries or contusions during labor, acting directly or by subsequent inflammations.
2. Pressure of displacements of tumors acting mechanically on urethra or neck of bladder.
3. Injuries or growths acting reflexly.
4. Diseases of nervous system.
5. Direct obstruction within the tube of the urethra, as from stricture or foreign bodies, such as a calculus.

Previous to beginning treatment there are certain preliminaries to be observed, which may be stated thus:

1. In all cases of retention of urine a vaginal examination is necessary.

2. A gum-elastic male catheter of medium size, without the stilette, is the best form of instrument to employ.

3. In retention from displacement it is important to remember the altered position of the urethra. In retroversion of the gravid uterus the vagina is drawn upward and forward, the meatus is drawn upward, and the direction of the upper part of the canal is backward and downward.

4. When any difficulty exists in accounting for the retention a visual examination should be insisted on.

5. It is a safe rule, before giving a definite verdict on any pelvi-abdominal tumor, to empty the bladder.

INCONTINENCE OF URINE.

SAENGER (*Archiv. für Gynäkologie*, Berlin B. 38, H. 2,) treats many cases of this trouble by dilating the vesical sphincter. The technique is as follows: after cleansing the meatus with cotton, a disinfected metal catheter, preferably a female one, is introduced 5 to 7 centimeters into the bladder, so that its point is about at the urethral orifice.

The top of the right index finger closes up the mouth of the catheter and holds it quietly in position.

The index or middle finger of the other hand is laid upon the catheter at the meatus. This finger then makes forcible pressure, at first downward then alternate toward either side. The pressure must be springy, elastic, and powerful, so that the meatus becomes widely open and some urine flows off alongside the catheter. By this pressure not only the sphincter vesicæ, but the musculans of the urethra becomes strongly stretched. In very sensitive individuals cocaine may be used. The dilatation is altogether painless. From eight to twelve stretchings should be made in all three directions at one sitting. More than ten or twelve sittings are seldom necessary.

The operation should be performed twice a day at first, and finally on alternate days. The bowels should be regulated, the abdomen kept warm and liquids used sparingly.

It is remarked by Dr. L. S. OPPENHEIMER, (*Louisville, Med. News*, June, 1880,) that irritable bladder frequently arises from

urethritis, specific or non-specific. In such cases he has found very rapid improvement follow the application of this solution:

1423.	R.	Chloral hydrate,			
		Carbolic acid,			
		Potassium iodide,	āā	gr. j	
		Water,		j.	M.

Iodoform suppositories are also of great value in various forms of urethritis. The following directions for preparing them are given by Dr. C. N. FOWLER, in the *Ohio Med. and Surg. Review*, September, 1880:

1424. R.	Iodoform,	℥j	
	Isinglass,	℥iv	
	Gum tragacanth, (powd.,)	℥j	
	Glycerine,	℥ij	
	Water (to dissolve ingredients,)	q. s.	M.

Another effective local anæsthetic is the *bromide of potassium*, injected, in solution, into the urethra. This has been strongly recommended by Dr. J. KIJANIZYN. (*St. Petersburger Med. Wochenschrift*, No. 57, 1879.) It may also be used in the form of a suppository.

PART II.

OBSTETRICAL THERAPEUTICS.

INTRODUCTORY.

CASE-TAKING IN MIDWIFERY.

A plan for recording midwifery cases was carefully compiled by Prof. ALEXANDER RUSSELL SIMPSON, M. D., of Edinburgh, and published in the *Edinburgh Medical Journal*, February, 1881. Although prepared more especially for hospitals, it can, with appropriate omissions, be employed in private practice, and hence we give it in this place :

I. ANAMNESIS.

Name para. Age
 Married. Single. Widow. Residence
 Menstruation began at Type days. Duration days. Quantity
 Date of last Menstruation from to
 Stirrage first felt Probable date of Conception.
 Condition during Pregnancy—
 Complications of Pregnancy—
 Previous Obstetric History—

II. PHYSICAL EXAMINATION on

General Appearance
 Breasts

ABDOMINAL EXAMINATION.	{	Inspection	{	Fœtus. Uterus.	Height of Fundus
		Mensuration			Direction
		Abdominal Walls			Size
		“ Cavity			Form
		Palpation			Head
					Back
					Limbs
					Uterine Bruit
		Auscultation			Fœtal Heart
					Other Sounds

VAGINAL EXPLORATION.	External Pudenda		
	Vagina		
	Cervix and Orifices		
	Fœtus		
	Rectum and Bladder		
Pelvis	Il. cr	Il. Sp	Inter-trochant
	Ext. Conj	Diag. Conj	True Conj.
Diagnosis of Presentation.			
" Position			
Prognosis	Date of Labor		
	Character.		

III. LABOR ON

Pains began	Their character		
Os fully dilated at	Waters escaped at		
Presentation			
Position			
Mechanism—			
Duration of Stage I.	II.	III.	
Artificial Interference—			

PECULIARITIES —

CHILD.	Condition		
	Development		
	Sex	Length	Weight
	Head.	O. M.	O. F. S. O. B. Bi.-P. Bi.-T. T. B. Caput suc.
		Diameter	Markings.
		Circumference	

Placenta—Form	Size	Weight
Membranes	Liquor Amnii	
Cord—Insertion	Length	
Convolutions round Ch	Contortions.	

IV. PUERPERIUM.

. as on Special Sheet

V. CONDITION ON DISMISSAL ON

MOTHER.	General		
	Breasts		
	Uterus	Size	
		Position	
		Os	
	Vagina		
	Pudenda		
	Other Pelvic Tissues		

CHILD. { General
 Mode of Nutrition
 Umbilicus.

The first page begins with an indication of the nature of the case recorded on it, according to the class of labor to which it belongs, according to the following classification of labor :

I. NATURAL LABOR.—Head alone presenting, and the labor terminated within twenty-four hours.

II. LINGERING LABOR.—Head presenting, but labor delayed beyond twenty-four hours.

III. INSTRUMENTAL LABOR.—The labor needing to be terminated by some operation—

1. Safe to mother and child—as forceps.
2. Dangerous to child—as embryulcia.
3. “ “ mother—as Cæsarean section.

IV. PRÆTERNATURAL LABOR, including—

1. Pelvic presentations.
2. Transverse “

V. COMPLEX LABORS, presenting complications—

A. On the part of the mother—as,

1. Hemorrhage.
2. Rupture.
3. Convulsions.
4. Thoracic and abdominal diseases.
5. Inversion of the uterus.

B. On the part of the child—as,

1. Prolapsus funis.
2. Twins.
3. Monsters.

CHAPTER I.

THE DISORDERS OF PREGNANCY.

The Hygiene of the Puerperal State—Abortion and Premature Labor (Prevention and Induction)—Vomiting and Nausea of Pregnancy—Sympathetic Nervous Disorders (Palpitation, Syncope, Neuralgia, Pruritus, Cutaneous Affections, etc.)—Digestive Derangements of Pregnancy (Dyspepsia, Constipation, Diarrhœa, Hemorrhoids, Icterus Gravidarum, Albuminuria.)

HYGIENE OF THE PUERPERAL STATE.

In order that the child-bearing woman may be enabled to give birth to healthy offspring, that the act of delivery may be accomplished with safety to both mother and child, and that her subsequent getting up may not be impeded by debility, etc., it is absolutely imperative that, from the inception of pregnancy, she should be placed under the best hygienic surroundings. She requires an abundance of pure air, sunlight, moderate and careful exercise in the open air, plenty of nourishing and easily-digested food.

Cleanliness must never be neglected; tepid baths are always beneficial.

While sedentary habits are always detrimental, great exertions, as dancing, horse-riding, or rough carriage-riding, must be equally avoided.

There is no need of a special diet; she requires to continue her usual food, merely eschewing anything hard to digest, or particularly stimulating. The peculiar cravings incident to pregnancy may be indulged in moderation, unless they are for articles of a hurtful or doubtful character. Nor is it requisite to medicate her, save for the correction of abnormal conditions, as constipation, acid stomach, vomiting, etc.

Tight lacing, or clothing too tight in any way, will not fail to prove injurious.

In short, let her take the same precautions in the care of her health that she would take under all circumstances. Mental excitement in every form should be sedulously avoided, and she should be carefully surrounded by everything calculated to maintain a tranquil, happy disposition.

To prevent depressed nipples, or any other condition of the mammæ likely to interfere with the proper performance of their functions, these parts must be protected from pressure by tight clothing, or cold from an insufficiency of covering.

Upon this subject we shall speak at length in the proper order.

GEORGE H. NAPHEYS, M. D., OF PHILADELPHIA.

This author, in his very excellent popular work on the hygiene of woman, entitled *The Physical Life of Woman*, has collected together many valuable suggestions as to the care of the health of pregnant women; and when such a work is desired by married persons for their instruction, none better can be recommended. His recommendations, briefly, are with reference to—

Food. This should be varied, light and nutritious, with a special regard to the idiosyncrasies of the person, which, it should be noted, are often quite different in pregnancy from the ordinary state. After the sixth month, an additional meal each day should be taken, so that the system can meet the unusual demands upon it for nourishment without overloading the stomach.

Clothing. This should be loose; the attempt at concealment by tight dresses, so often made by young mothers, being especially avoided. Flannel drawers should be worn when the pregnancy is advanced. Pressure upon the lower limbs in the vicinity of the knee or the ankle joint should be avoided, more particularly during the last months. It is apt to produce enlargement of the veins, and finally varicose ulcers. The garters should not be tightly drawn, nor the gaiters too closely fitted, while yet they should firmly support the ankle.

Exercise. Dancing, lifting, carrying heavy weights, and similar forms of exercise, should be avoided. The same is true of horseback exercise and driving over rough roads. Journeys should be taken as little as possible. The vibrating motion and sudden jars incident to railroad traveling often produce nausea and faintness; sea-sickness, with its violent vomiting, not infrequently leads to premature labor. Frequent short walks are the best forms of exercise.

Sleep. A larger amount of sleep than usual is demanded in the pregnant condition. Women should then lie abed late, and retire early, and a nap during the day is to be recommended. Late in pregnancy some women experience a sense of suffocation on lying down. They should sleep on a bed-chair, or propped up on pillows.

Mental Condition. Severe study, anxiety, and all exciting emotions and absorbing intellectual pursuits, should be suspended during pregnancy. The usual wide variations in the mental state, the feeling of despondency and that of exhilaration, should both be tempered by judicious representations of the groundlessness of the one and the risk of the other. The senses should not be overstimulated by rank odors, loud noises, or extremely sapid condiments.

Marital Relations. In the earlier months of pregnancy these may be moderately continued, except about the periods when the woman, if not pregnant, would have had her menses. In such cases the molimen is present, and coition tends to increase it and lead to abortion. In the last three months of pregnancy it is generally wiser to abstain wholly from sexual approaches.

ABORTION AND PREMATURE LABOR.

DR. ANGUS MACDONALD, OF EDINBURGH.

This authority, in a discussion on the subject, (*Edinburgh Med. Journal*, 1880,) divides the treatment of abortion as follows:

1. *Treatment of Threatened Abortion.* The indication is here to arrest the uterine contractions and hemorrhage by rest, recumbency, cool regimen and opiates. Search should be made for hydatids, as myxoma of the chorion is a frequent cause of abortion, and in such cases we ought not to attempt retention of the ovum.

2. *Treatment of Inevitable Abortion.* If the bleeding is moderate and the contractions tolerably powerful, it is a mistake to consider that any specially active treatment is required, as the great majority of cases need nothing further than the free administration of ergot, the maintenance of rest, quiet and recumbency, with cool, non-stimulating diet and careful regimen. Care ought to be taken to retain for the inspection of the doctor every bulky thing that is dis-

charged, so that he may judge as to whether the entire ovum has been expelled or not. In such cases all that will be needed is possibly slight acceleration of the final stage of the abortion by gentle traction upon its presenting point after it is well into or through the os uteri, combined with pressure upon the fundus uteri by the hand on the abdomen. Still, even such easy cases require careful watching, because the hemorrhage is apt to be serious, and the ovum, if slow to separate, is liable to become putrescent.

Dr. M. objects to the wholesale practice of what is called plugging the vagina, which is practiced almost universally in such circumstances. Plugging the vagina may be so conducted as to arrest the most severe uterine hemorrhage, but in that case the vagina must be carefully packed with the material used as a plug, every corner of it being tightly filled. But what he objects to, is plugging as it is ordinarily practiced.

His opinion is, that an ordinary run of cases, in which the hemorrhage is not specially profuse, we ought to trust to ergot by the mouth, or to ergotine subcutaneously, and that we shall most probably find all will go on right, except that we shall have to hurry the conclusion of the case with slight manipulation, and that wholesale imperfect plugging of the vagina is to be strongly deprecated. If, however, hemorrhage is severe, then active measures must be taken to empty the uterus.

If the cavity of the cervix is sufficiently dilated as to permit its being traversed by the index-finger, then by chloroforming the patient and introducing one hand into the vagina, while with the other you depress well the uterus, it is usually possible to explore in detail every portion of the inner surface of a uterus at the third month, to make out whether the ovum is entirely or partially separated from it, and to break up any adhesions that may exist between the ovum and the uterus. Then, after the ovum is completely isolated from the uterine walls, a very moderate amount of pressure upon the fundus is sufficient to expel enough of the ovum through the open cervix to allow of its lower pole being gently grasped between the index and middle finger of the hand in the vagina, and in that way removed.

At one time he used *forceps* for the removal of abortions, and many such are made. But forceps are liable to catch the uterine wall, and his conviction is that the best abortion forceps is the human fingers; and they have at least one advantage over every other instrument, that one can never forget them or leave them behind.

In the meantime, it is advisable to have the patient well under the influence of *ergot*, whether the drug is administered by mouth, subcutaneously, or per rectum. If the abortion has been long on the way, it is advisable to wash out the interior of the empty uterus with a two per cent. solution of carbolic acid, and then make the patient comfortable and let her rest. Suppose, however, as frequently happens, the cervix is not sufficiently dilated to allow the index finger to pass it, and the bleeding is serious. These are the classes of cases that one usually meets with as examples of imperfect and useless plugging of the vagina. If the practitioner is able to stay with his patient, no objection can be made to plugging the cervix by means of a pledget of lint, except that it is only partially effective as a hæmostatic, is somewhat difficult to insert, and liable to be soon expelled.

But the method which is of all the safest, speediest and most agreeable, is to introduce a *sponge-tent* into the cervix, and leave it there from two to four hours. During an abortion, a tent is never difficult to introduce, as there is almost always a considerable amount of dilatation at the inner os, so that a moderately large tent may be passed with ease. Besides this, the resistance to dilatation in the neck of the uterus is not specially great, so that the tent rapidly expands, and will be found fully dilated in three or four hours at most, and thus septic changes are not likely to be set up by the tent. The gradual distension of the tent acts as an efficient plug against hemorrhage. At the same time, the stimulus of the dilating tent reflexly operates upon the uterus, promoting contraction of it. In this way the abortion is hurried to its close.

In certain cases in which the great bulk of the ovum has been expelled, and from examination of the discharge you are not satisfied that the whole has come away, and yet you find the cervix is not sufficiently dilated to allow a finger to pass it, the use of a copper curette will be sufficient for all the requirements of the case. After its use, the uterus ought to be washed out by means of a double catheter with a 2 per cent. solution of carbolic acid.

3. *After-Treatment of Abortion.* So soon as the uterus is perfectly emptied, and, if thought necessary, disinfected by being washed out with a suitable solution of carbolic acid, the patient should be *kept in bed for a week*, at least. The harm that is done by getting up too soon after abortion, is incalculable. It is a common proverb that "it is better to have a broken leg than a bad sprain." There is

no doubt that it is frequently better for a woman to undergo a severe labor than an abortion. The reasons are similar in both cases.

As the risks from septicæmia in connection with abortion are considerable, and the more so if the ovum has, from whatever reason, become putrid before its expulsion, or even if the abortion has been long in the way, the greatest care ought always to be employed, by the use of antiseptic vaginal, and, if need be, uterine washes, to avoid absorption of putrescent materials. The maintenance of efficient contraction in the uterus, is also a considerable safeguard against absorption of such materials through the venous channels, at least, and this should be aimed at by the diligent use of *ergot*. The results of *ergot* upon a small uterus, with its muscular wall only imperfectly developed, are, of course, less to be trusted to than in dealing with a uterus at term, when the muscular wall is powerful, so that we ought to depend most on cleanliness and antiseptics.

4. *Treatment of Sequelæ of Abortion.*—The most prominent of these is *menorrhagia*, with consequent anæmia.

In some of these cases, the placenta, or portion of the decidua left adherent in the interior of the uterus, has undergone a low kind of organization, "has formed what in this country we call placental polypi." When these are present, it is not uncommon to find considerable dilatation of the cervix persistent, so that months after the abortion, its cavity, is traversable to the examining finger. But in other cases it would appear that mere relaxation of the muscular wall of the uterus, and the presence of a congested, probably granular condition of the mucous membrane, is all of a pathological nature that can be found.

In the first class of cases, the uterus may be emptied without any antecedent dilatation process. The polypi are to be broken off by the finger, or scraped off with a blunt copper curette; the uterus then washed out with solution of carbolic acid; and possibly, with rest and *ergot*, all will go well. The solution of the *pernitrate of iron* is doubly useful in such cases as an internal medicine; it meets the requirements of the system for iron, while it acts at the same time as a powerful hæmostatic.

In those cases in which the cavity of the cervix is tightly closed, the most efficient means of treatment is the use of a *tangle* or *sponge-tent*. Before the use of the curette became so general, many were in the habit of dilating such cases, and although finding nothing in

the uterus to remove, almost always observed that the hemorrhage ceased. The possible explanation was that the irritation of the tent stimulated the flabby uterus, made it firmer, and less inclined to bleed.

It very often results that after such dilatation, when you scrape the whole of the interior of the uterus with a copper curette, you find that nothing will come away. On other occasions you find that soft, thickened fungous patches of hypertrophied mucous membrane peel off freely from a particular portion or portions of the area of the body of the uterus. There is no doubt but the removal of them is necessary to the restoration of healthy action of the mucous membrane of the body of the uterus.

Hence, in general terms, in the treatment of severe and exhausting hemorrhage, continuing for months after an abortion, the proper treatment is to dilate the cervix with a tangle-tent, and explore the cavity of the uterus, unless the cervix is so open as to allow exploration of the cavity of the body without dilatation. If, then, any considerable portion of lowly organized remains of the abortion are present, they may be removed with the finger-nail. If, however, there is only present an irregular soft condition of the mucous membrane, then the surface ought to be scraped with a copper curette.

DR. THEOPHILUS PARVIN, OF INDIANA.

Dr. PARVIN, writing upon the treatment of abortion, states his belief that ergot is a hindrance rather than a help in securing complete evacuation of the uterus in early abortions. The *tampon*, however, especially if introduced into the cervical canal, assists to procure dilatation, and while restraining the loss of blood, causes what little escape of blood takes place above it, to aid in separating the ovum from its attachments to the uterus. So long as the ovum is entire (and its integrity should be scrupulously preserved,) we may hope for its complete expulsion, and should usually abstain from active interference. When the sac is broken, we should empty the uterus artificially, if, after removing a tampon that has been applied a few hours, the hemorrhage is at all profuse and the ovum is not expelled at once. This should be done with the finger; and, instead of drawing the uterus down within reach of one finger, as recommended by SIMPSON, of Edinburgh, it is better to follow the practice of MAURICEAU—introduce the hand into the vagina (under anæsthesia), and use two fingers within the uterus, “as crabs do when they grip anything with one of their forked claws.”

When immediate evacuation of the uterus is demanded, on account of dangerous hemorrhage or an offensive discharge, announcing the possibility of septicæmia, there is a still better way to proceed: "Let the patient lie on her back upon a hard bed, her hips brought to its edge, lower limbs strongly flexed; then introduce Neugebauer's speculum, and bring the os fairly in view; now catch the anterior lip with a simple tenaculum, or better, with Nott's tenaculum-forceps, and then, if there be any flexion—and it is not uncommon in cases of spontaneous abortion to observe this—use gentle traction to straighten the bent canal; at any rate, fix the uterus by the instrument. Now, take a pair of curved polypus forceps of suitable size, or, better still, Emmet's curette-forceps, and gently introduce the closed blades into the uterine cavity, open them slightly, then close them and withdraw, when the fragments of membranes can be removed, and the instrument re-introduced. Repeat this three or four times if necessary." The uterus should then be swabbed out with Churchill's tincture of iodine by means of an applicator. Finally, ten or fifteen grains of quinine should be given, and it will be very rarely indeed that convalescence will not be prompt and perfect.

A. J. C. SKENE, M. D., OF NEW YORK.

This writer, (*Half-Yearly Compendium*, July, 1876,) sums up the rules of practice in abortion as follows:

1. Where the symptoms of abortion are slight, and of short duration, efforts should be made to arrest it.
2. During dilatation of the os, opium should be given, if there is any call for it, and ergot should be carefully avoided.
3. Hemorrhage should be controlled by tamponing the cervix, the hydrostatic dilator being the best for that purpose.
4. When the os is fully dilated, and the ovum is not properly expelled after the use of ergot, it should be removed by the forceps and curette.
5. Post-partum hemorrhage should be arrested by ergot and the intra-uterine tampon.

The inflammation of the uterus, peritoneum, or cellular tissue, which may arise, should be treated on general principles.

PROF. KARL SCHROEDER, M. D., OF BERLIN.

To prevent the abortion, the woman should remain constantly in

the dorsal position, and a few full doses of tincture of *opium* should be given by the mouth or rectum. When profuse hemorrhage threatens the life of the mother, the tampon, *mineral acids* and *ergot*, internally, and vinegar and cold water to the abdomen. The caoutchouc tampon is objectionable, as it, when filled, only increases the tendency to dilatation of the os and uterine contractions. Lint pressed against the bleeding surface adheres and checks further flow; hence a small tampon will often suffice. Introduce the speculum, open it widely, and pack the lint entirely over the bleeding cervix, and then fill in behind this; withdraw the speculum while holding the plug closely in place with a long rod. At the end of six hours remove the tampon and re-apply it if necessary. The hemorrhage may thus be entirely checked, or the ovum may be found lying loose within the cavity. As this method does not increase uterine action, hope may be entertained, even yet, of saving the ovum.

To remove the ovum, when necessary, HONING recommends the compression of the uterus by combined manipulation. Two fingers of one hand are brought into the anterior vault of the vagina, and placed against the body of the uterus, while the other hand presses from outside upon its posterior wall. Or, the uterus may be pressed from outside against the symphysis. This method of expulsion succeeds easily and perfectly.

After the hemorrhage is over, the patient is to be treated as a parturient woman. If the ovum was putrefied, or decomposing shreds are found, injections of tepid water or infusion of chamomile should be used thrice a day.

J. G. SWAYNE, M. D., BRISTOL, ENGLAND.

The following formulæ are of service in cases of *accidental hemorrhage during pregnancy* :

1425. R.	Acidi sulphurici diluti, Tincturæ opii, Infusi rosæ compositi,	℥ ʒj ℥ xl f. ʒ vj.	M.
Two tablespoonfuls every other hour.			

1426. R.	Plumbi acetatis, Acidi acetici, Morphiæ acetatis, Aquæ destillatæ,	gr. xviii ℥ xx gr. j f. ʒ vj.	M.
Two tablespoonfuls every hour.			

The women is also, of course, to be kept in a recumbent position, and cold compresses applied to the abdomen and vulva. Cold

drinks and cold-water enemata may be administered. By the employment of these expedients, the bleeding may be checked, and the patient carried in safety to the close of her pregnancy.

ASAFETIDA IN HABITUAL ABORTION.

TURAZZO (*Centralblatt für Gynäkologie*, 1892, No. 8), recommends the use of asafetida during pregnancy in cases of habitual abortion. He places the patient, as soon as pregnancy has been diagnosed, upon $1\frac{1}{2}$ -grain pills of asafetida, administered twice daily, gradually increasing the dose to ten pills a day. The treatment is continued during pregnancy, the daily dose being gradually decreased. Turazzo has thus successfully carried to term three cases of frequent abortion, one of which had aborted twice and two five times each. A case of threatened abortion at the sixth month was also brought to term.

INDUCTION OF PREMATURE LABOR.

CLEMENT GODSON, M. D., OF LONDON.

This writer, (*St. Bartholomew's Hospital Reports*, 1875,) enumerates the following as the methods proposed for inducing premature labor:

1. Evacuation of the liquor amnii by puncturing the membranes.
2. The administration of certain drugs, particularly ergot of rye.
3. The injection of water into the vagina.
4. The injection of water within the uterus.
5. The injection of atmospheric air or carbonic acid within the uterus.
6. Galvanism.
7. Irritation of the mammæ, by means of cupping-glasses.
8. Separation of the membranes from the uterine wall, as far as is practicable, with the finger.
9. Insertion of a long gum-elastic catheter between the membranes and the wall of the uterus.
10. Dilatation of the vagina by means of air-bags.
11. Dilatation of the os uteri by air-bags.
12. Dilatation of the os uteri by means of sponge-tents.

Most of these are open to the objections that they are uncertain, or hazardous, or have unpleasant sequelæ.

Most of them are practiced in such a manner as to force on too

hurriedly the uterine contractions; and that which consists in the evacuation of the liquor amnii stands self-condemned, as depriving the womb, at the very outset, of the all-important dilator provided by nature.

Dr. G.'s mode of procedure consists in insinuating, night and morning, between the cervix uteri and the membranes, sponge-tents of gradually increasing size; the first, and each succeeding one, being as large as the parts will admit. On removing each tent, and before replacing it by another, a warm douche, containing Condry's fluid, is administered. He has found the use of one, two and three tents to be sufficient, and has never had occasion to employ more than four.

The instrument by means of which the tent is placed in position was made for him in London. It is fully described in the *Lancet*, April 22d, 1871.

It entirely obviates the use of the speculum, and being provided with what is equivalent to a universal joint, it enables the tent to be pushed, without extraneous guidance, between the cervix and the membranes, taking of itself the readiest path presented to it. For the same reason the membranes run no risk of puncture. The tents themselves are short, rounded at the extremity, and perforated, to facilitate adaptation to the instrument.

The apparatus, and the mode of its application, are so simple, and so free from inconvenience and danger, that its use causes in practice little or no anxiety on the part of the patient; and until labor sets in, she moves about without pain or inconvenience, regardless of the presence of the tent.

AN EFFECTIVE METHOD FOR THE INDUCTION OF ABORTION.

RÆTHER, at the September meeting of the Hamburg Obstetrical Society (*Centralblatt für Gynäkologie*, No. 42, 1891), advocates the following plan of inducing abortion: Under ether, dilate the cervical canal; clear out the uterine cavity with the finger and, if necessary, a placental forceps. Scrape the placental site with a dull curette, and pack the uterine cavity with iodoform gauze, leaving an end projecting from the cervix to secure drainage. Done aseptically, this method is safe, effective and rapid, and does not show the patient and bystanders how they could perform such an operation themselves in another case.

ALFRED MEADOWS, M. D., LONDON,

Adopts in preference the following plan: He secures free evacuation of the bowels, then introduces a sea-tangle tent, the size of a No. 7 catheter. The os is thus dilated so as to admit a small-sized rubber bag; in five or six hours this may be withdrawn and a larger one introduced, and so on till action is induced. Or an elastic bougie is passed into the uterus, so as not to rupture the membranes. The cervix is now generally the size of a five-shilling piece. Uterine action is set up, and goes on more or less speedily.

PROF. W. S. PLAYFAIR, M. D., LONDON,

Considers it always an advantage to allow the pains to come gradually, in imitation of natural labor; therefore, if after the bougie has been inserted, contraction come on strongly, the case may be left to nature. If feeble, resort to dilatation by means of the fluid bags, and subsequently puncture the membranes. In this way, the labor is completely under control, and he believes this method will commend itself as the simplest and most certain mode yet known and most closely imitating the natural process.

PROF. FLEETWOOD CHURCHILL, M. D., DUBLIN.

Abdominal frictions and manipulations, with warm baths, etc., rarely succeed. This author thinks the plan of KIWISCH admirable. This is throwing a stream of warm water upon the os by means of a long tube. It rarely fails, and may be used for ten or fifteen minutes once or twice a day. The profession is now in possession of sufficient experience to pronounce favorably of this plan: and it will probably supersede all others.

The application of belladonna to the os uteri is doubtful and dangerous.

Galvanism has been successfully employed by a number of practitioners.

CHARLES CLAY, M. D., LONDON.

This author, like many others, has no confidence in emmenagogues, as they constantly fail, even when pushed to an enormous extent. The only certain means is the destruction of the vitality of the embryo, as it then becomes a foreign body. This is best effected by the use of the male catheter; the escape of waters down the tube, with a tinge of blood, is evidence of success.

PROF. S. TARNIER, PARIS,

Prefers the separation of the membranes when the internal orifice is open; dilatation of the neck when the orifice will not admit of the passage of instruments to separate the membranes. A last resource will be the excitation of reflex action.

NOTES ON REMEDIES.

I. UTERINE SEDATIVES AND TONICS.

Cannabis Indica has been found useful in impending abortion from congestion or irritability of the uterus. From five to twenty drops of the tincture may be given every two or four hours. Drs. CLENDENING, REYNOLDS, LEVER and CHURCHILL praise its effects.

Emetics. Dr. J. G. STOKES, of Illinois, (*Half-Yearly Compendium*, Vol. VIII.,) advocates the use of emetics in all cases of abortion, especially in those continued cases of threatened abortion which are so annoying to both physician and patient.

Ergota is constantly employed in accidental abortion.

Opium is one of the most important agents of this class.

Quinine is thought by many to act as a uterine stimulant, and to be advantageous in this accident.

Sabina is useful against the hemorrhage which indicates approaching abortion in women of bad fibre. In these cases, the dried powder of the leaves may be given, in doses of gr. xv-xx thrice daily. In habitual abortion depending upon diminished vitality of the uterine system, savin has also been advised:

1427.	R.	Sabinæ,	℥ij-iv	
		Aquæ ferventis,	f. ℥vj.	M.

A tablespoonful thrice daily, taken during the intervals of the menstrual period. This remedy must, however, be employed with caution.

Tannicum Acidum, in combination with opium and ipecacuanha, has been strongly advised in threatened abortion.

Terebinthina Oleum has been favorably reported upon by Dr. FORDYCE BARKER in the treatment of abortion; given as an enema, he found it to act as an effective oxytocic, as well as hemostatic.

Viburnum Prunifolium is an extremely valuable preventive of abortion, often succeeding where other means fail. The bark of the root is the portion used, from which an extract is prepared. It has been especially noticed by Dr. E. W. JENKS. (*Gynecological Transactions*, 1876.)

2. ECBOLIC OR ABORTIFACIENT AGENTS, OR UTERINE EXONERANTS.

Aloes. Most of the patent pills sold for the real, if not avowed, object of in-

ducing abortion, are composed of aloes combined with drastic cathartics, the effect of the violent peristalsis induced, being to excite by sympathy, uterine contractions. It is needless to add that this plan is both unscientific and dangerous.

Cantharides sometimes produces abortion through the renal and vesical excitement which it causes. As a medical means to this end, it is too dangerous.

Ergota. Probably the most efficient of known ecbolics, continues to be the various species of ergot, as derived from rye, wheat, rice, or maize. It has, however, been denied that it acts as such, except in the uterus at term. The eminent Dr. PAUL DUBOIS denied that it could provoke abortion. The correct opinion seems that advocated by FONSAGRIVES, (*Thérapeutique*, 1878,) that its ecbolic action is null at the commencement of pregnancy, but increases in direct proportion as the latter progresses.

Gossypium. The fresh bark of the root of the cotton plant, in decoction (3iv. of the root to water Oij., boiled to Oj.) in doses of f.5iij. repeated, is a popular abortifacient in the southern states. The fluid extracts on sale are generally almost or quite inert.

Faborandi and *Pilocarpin*. Considerable attention has been directed to these agents as ecbolics, and they have recently been carefully studied by Prof. P. MULLER, of Berne. He justly remarks that it certainly would be a great advantage if premature labor could be induced by internal remedies. All the dangers from traumatism and infection would be absent, and the objections which now exist against ergot, might be found wanting in the new agent. But his experiments were not encouraging. To test the contraction-exciting power of pilocarpin, MULLER gave it to puerperal women, whose uteri are particularly susceptible to such excitants. Multiparæ with flaccid abdominal parietes and large, readily palpable uteri were chosen, and both ergotin and pilocarpin given them. The results showed that pilocarpin does not act as powerfully as ergot, for if the observations are continued through several days, after two days the pilocarpin loses its effect.

Quinia Sulphas. From a mass of evidence laid before the American profession, of recent years, there would seem to be no doubt but that, under some circumstances not yet ascertained, quinine provokes abortion. This would appear to be more especially the case when administered in large doses in the absence of malarial poisoning in the system.

Ruta. The rue is one of the oldest known abortives. Its specific action as such, and independent of any intestinal irritation, has been abund-

antly established by the recent researches of Dr. E. HAMELIN. (*Dict. des Sciences Med.*, 1877.) Although uncertain in its action, he thinks the uterine contractions to which it gives rise, are more physiological in character than those following the use of ergot. In administering it, he prefers an infusion of the fresh leaves and roots, to any other form (5ij.-iv. to water Oj.), to be taken in two or three doses at intervals.

Sabina. The reputation of this plant as an emetic is probably not justified. Dr. E. HAMELIN, who has studied its properties carefully, doubts whether it excites directly any uterine action: if such follows, it is the result of transmitted irritation.

Tanacetum, often used for criminal purposes as an abortifacient, is, in the opinion of STILLÉ, incapable of producing any such result.

Hot Water. Dr. J. F. HORNE recommends the use of hot-water injections into the uterus to cause contraction of that organ after abortion. He uses two pints of water as hot as can be borne by the hand, employing an ordinary Higginson's syringe with vaginal tube. It is found to be much more efficacious than ergot in causing expulsion of the placenta and cessation of the hemorrhage. Three successful cases are related. (*Obstet. Journal*, March, 1880.)

VOMITING AND NAUSEA OF PREGNANCY.

DR. EUGENIO BARBIGLIA, OF NAPLES.

In his very complete study of this subject, the above-named writer classifies one means of opposing the vomiting of pregnancy under the following headings:

1. *Medical.* In the first rank stand *alkalics*, especially the bicarbonate of soda. When gaseous eructations are present, this should be combined with charcoal, the latter persisted in, in frequent doses until the fœces are blackened. Aperient salts, in small doses, to act on the lower bowels, are frequently of use, but all active purgation must be avoided. The bitters stand next to the alkalies. Gentian, columbo, quassia and angostura or absinthe may be used alone or combined. Cinchona combined with iron may be demanded in feeble cases. Occasionally the vomiting has been found to depend upon the presence of intestinal worms, in which cases santonine will give prompt relief. Stimulants, either alcoholic or as

strong coffee and tea, benefit some cases. The numerous narcotics employed by many physicians, are rarely of decided efficacy. More can be said in favor of cold applied locally on the stomach by ice-bags, by swallowing ice, or by the ether spray to the spine. Dr. B. mentions especially the early use of *arsenic*. He adds that whatever remedy is tried, unless it acts promptly with benefit, it should not be persisted in.

2. *Operative Treatment.* In plethoric cases, where the menses are abundant, a general bleeding may alleviate the symptoms. Local bleedings from the os may be substituted in other cases. Vaginal injections of alum or acetate of lead may follow these incisions. Slight cauterizations of the os with tincture of iodine or nitrate of silver, may take the place of the incisions. Narcotic ointments, as of belladonna, aconite, camphor, opium, chloroform, etc., may be applied to the os. If there is displacement of the uterus, this should be restored. Other procedures are large cups to the epigastrium, compresses wet with laudanum, narcotic plasters or ointments, hypodermic injections of morphia, etc.

3. *Diet.* The patient should be directed to use a meat diet, small in quantity, and to take food more frequently than usual. Longings, however, for unusual articles, should be satisfied. In severe cases, it may become necessary to support the patient by nutritive injections. One of the best is to chop fine a sweet-bread, beat it up with glycerine, and add an equal amount of lean, raw beef, free from fat and fibre, and thoroughly triturated. A syringe, with a large nozzle, is required.

4. *Hygiene.* This must be governed by the circumstances of the case. Some patients suffer less in motion, others when at rest, some during excitement, others when quiet. In all such respects their preferences should be consulted.

When, as will occasionally be the case, all the above means fail and serious danger is threatened from debility, there should be no hesitation to proceed to artificial abortion.

DR. J. MARION SIMS.

This eminent gynecologist observes that, with our present knowledge of the treatment of this affection, we should hear no more of deaths from pregnancy-vomiting, nor even of miscarriages induced to save the lives of mothers. To the writings of GRAILY HEWITT, JONES and COPEMAN, we are indebted for direct and practical meth-

ods of treatment, which seem to promise success in the management of these troublesome cases. Yet these methods are not without a certain amount of risk, and must be cautiously tried. In GRAILY HEWITT'S plan, we must be careful not to make undue pressure on the cervix uteri with the pessary. In Dr. JONES' plan we must place the patient in the left lateral semi-prone position, apply a Sims' speculum, expose the cervix without touching it with the speculum, and then pencil the caustic solution on the granular surface, and on that alone. In COPEMAN'S plan we must gently insinuate the end of the index-finger in the os tincæ, and pass it into the cervical canal not more than three-fourths of an inch deep. This is to be done with the patient on her back. If the uterus should be flexed anteriorly, (as it usually is in such cases), the operator must not throw the fundus up and push it back toward the promontory of the sacrum with the bi-manual method; for this bi-manual pressure in the early months of pregnancy may provoke abortion. Of course we should not resort to this heroic method of treatment, unless the case is urgent and rebellious.

GUENIOT (*British Med. Jour.*, London,) believing that the vomiting is due to irritation transmitted from the uterus to the sympathetic system and reacting on the stomach, directs his treatment to these three sources: (1) To lessen the morbid excitability of the uterus, belladonna, cocaine, morphine, vaginal injections, cauterization and dilatation of the cervix are employed; (2) the excitability of the sympathetic system is allayed by prolonged baths, bromine, cold to spinal region, etc.; (3) great attention is paid to the diet. Solid food is completely dispensed with, and diluted milk, beef tea, and the like, in teaspoonful doses every half hour or hour, are given with light baths; alkaline waters, as Vals and Vichy, should be the only drink taken. Employed as a gargle and a drink, these waters frequently modify the symptoms. Fly-blisters over the epigastrium, cold to this region, avoidance of tight bands, etc., are also recommended. MCCALL again calls attention to the excellent effect produced by salol. It may be given in small doses, frequently repeated.

MITCHELL reports a case in which the only remedy affecting the condition was opium, the vomiting, however, returning as soon as the effect of the drug wore off. GOTTSCHALK has had excellent results in two cases from the internal administration of menthol. The formula furnished by WEISS is as follows:

1428. R. Menthol, 1.0 gramme (gr. xv)
 Spts. vini, 20.0 grammes (℥v)
 Syrupi, 30.0 grammes (℥viiss). M.
 Et solve.
 Sig: Teaspoonful hourly.

WM. LEISHMAN, M. D., LONDON.

Breakfasting in bed and not rising for awhile, often speedily relieves the trouble. In cases where the bowels are sluggish, the granular effervescing *citrate of magnesia* is useful, or the "potion de Riviere" given so that the effervescence occurs within the stomach:

1429. R. Acid. citric., gr. xxxvj
 Syrupi, f. ℥ j
 Aquæ, f. ℥ ij. M.
 1430. R. Potassii bicarb., gr. xxxvj
 Aquæ, f. ℥ ij. M.

A tablespoonful of each to be taken successively. When there is exhaustion, stimulants are required. Pepsin is valuable. Often simple milk, and lime-water, and barley-water, (especially the latter,) are retained in very grave cases. Nutritive enemata may be employed to sustain the failing powers, or inunctions of cod or other oils.

DR. ALBERT EULENBERG, BERLIN.

1431. R. Tincturæ iodi, ℥ xv
 Alcoholis, f. ℥ ij. M.
 Give three drops several times a day, in a tablespoonful of an aromatic infusion.

1432. R. Tincturæ iodi, gtt. x
 Aquæ destillatæ, f. ℥ ij
 Syrupi aurantii corticis, f. ℥ j. M.
 A teaspoonful, or even a tablespoonful.

Other approved prescriptions are:

1433. R. Bismuthi subnitratis, ℥ ij
 Acidi carbonici, gr. iv
 Mucilaginis acaciæ, f. ℥ j
 Aquæ menthæ piperitæ, f. ℥ ij. M.
 A tablespoonful three or four times a day.

1434. R. Atropiæ sulphatis, gr. ij
 Aquæ destillatæ, f. ℥ j. M.
 Two drops in water, before meals.

1435. R. Cerii oxalatis, gr. x
 Bismuthi subnitratis, gr. xxx. M.
 Make ten powders. One five or six times a day.

Sometimes a rectal injection of *chloral hydrate*, gr. xxx., morning and evening, will effectually control this symptom. *Bromide of*

potassium, ℞j., thrice daily; *chloroform*, gtt. ij., in mucilage, and medicated pessaries, may also be tried. Dr. E. COPEMAN, of Norwich, Eng., claims invariable success to follow dilatation of the os uteri with the finger, once often being sufficient to relieve the nausea completely. (*British Medical Journal*, May 25th, 1875.) A somewhat similar plan is that suggested by Dr. M. O. JONES, of Chicago, to wit, painting the os and cervix with tincture of iodine, or cauterizing them with solid nitrate of silver. This plan has met with great success in obstinate cases, and has been endorsed by Dr. J. MARION SIMS.

NOTES ON REMEDIES.

INTERNAL REMEDIES.

Acidum Hydrocyanicum Dilutum, gtt. v., is a valuable sedative.

Aconitum. A few drops of the tincture of aconite will relieve some cases.

Armoracia. Dr. TILT recommends a small portion of horse radish scraped fine, and moistened with vinegar.

Arsenicum. Single-drop doses of Fowler's solution will sometimes afford astonishing relief.

Belladonna, in ten-minim doses of the tincture, is recommended by TILT and others.

Bismuthi Phosphas. M. TEDENAP, of France, considers this superior to the subnitrate. It acts in smaller doses, being more soluble, and is applicable to the same condition for which the subnitrate is employed. The dose is one or two grains for an adult.

Bismuthi Subnitrates will be found at times an efficient sedative.

Carbolicum Acidum, in drop doses of the crystallized acid, in mucilage, thrice daily, has been recommended by English writers.

Cerii Oxalas has attained great favor. Dr. F. E. IMAGE, (*Practitioner*, June, 1878,) prefers this formula :

1436. R.	<i>Cerii oxalatis</i> ,		
	Pulv. trag. comp.,	āā	gr. x
	Tinct. aurant.,		f. 3 ss
	Aquæ,	ad f. 3 j.	M.

For one dose as required. It is often given in too small a dose; gr. x. is required.

Chloralis, in simple nervous erethisms of the stomach, often acts promptly; gr. xxx, in mucilage, for a rectal injection, is the best form of administration.

Chloroformum may be given in doses of a few drops in a spoonful of milk. Sir C. LOCOCK recommended repeated chloroformization almost to insensibility.

Creosotum should, according to Dr. RINGER, be given in very small doses : for instance, added to water, so that the latter tastes of it, and then a dessertspoonful of the fluid taken from time to time.

Cupri Sulphas, gr. iv to aquæ f. ʒj. Six drops at a dose will sometimes relieve. (BARTHOLOW.)

Ether. A few drops at a time in water, or inhaled, will at times relieve the nausea. The spine has also been sprayed with the ether spray, with most excellent results, by Dr. DUBELSKI, of Warsaw.

Hydrargyri Chloridum Mite. Dr. TILT occasionally administers gr. x-xv of calomel for its sedative action ; or combines it in smaller quantities with opium.

Hyoscyamus. Dr. PEROIS, Professor at the Medical School at Rennes, reports two striking cases of relief by hyoscyamia. After trying, unsuccessfully, all the usual means, he administered a teaspoonful every hour of a mixture containing 5 milligrammes of hyoscyamia in 125 grammes of fluid. The next day the vomiting ceased.

Ingluciv. This substance, used to facilitate digestion, has been favorably reported upon.

Iodum, in drop doses of the tincture every hour or two, will, according to BARTHOLOW, sometimes greatly relieve this symptom.

Ipecacuanha. Dr. C. FULLER introduced the treatment of vomiting of pregnancy by single-drop doses of wine of ipecac. in a teaspoonful of water every hour. Others have also reported favorable results from this plan.

Lactopeptin. This peptic compound has in a number of instances relieved the nausea and vomiting.

Magnesia in small quantities occasionally affords relief.

Nux Vomica, in tincture, gtt. v.-x., as required, is relied upon by PLAYFAIR and others. BARTHOLOW says it is best adapted to cases with much nausea and little vomiting, in doses of half a drop to a drop.

Opium and Morphia are, according to TILT, the first remedies to be tried. He recommends suppositories containing gr. ij.-iij. of extract of opium, or gr. j. morphiæ acetatis : or the drug may be given by the mouth. Inquiry, however, must be made as to the idiosyncrasy, as it is well known that any form of opium produces vomiting in some persons. Dr. ATTHILL combines morphia with atropia for a hypodermic injection :

1437. R. Morphiæ acetatis,
Atropiæ liquoris (B. Ph.),
Glycerinæ,
Aquæ,

gr. viij
m̄xlviij
m̄ v
ad f. ʒ iv. M.

Dose, five to ten drops for a hypodermic injection.

Pepsina, either as wine or in other forms, will often succeed.

Potassii Bromidum. Dr. S. C. BUSBY, Washington, D. C., (*Amer. Jour. Med. Sci.*, January, 1878,) has obtained decided and immediate relief from the bromide of potassium. He gives 30 grains to a drachm, dissolved in beef-tea, to which brandy and laudanum may be added, according to the condition of the patient. He gives it in enemata every four hours. Dr. FREIDRICH, in *Deutsches Archiv. für Klin. Med.*, Nov., 1879, states that he considers the action of bromide of potassium, given in doses of from one to two grammes a day, so valuable that he would be almost disposed to say that we possess in bromide of potassium a specific remedy against the obstinate vomiting of pregnancy, if it were permissible to speak of specifics in such a case.

Strychnia. Dr. TILT strongly recommends :

1438.	R.	Strychnia,	gr. $\frac{1}{4}$	
		Tinc. zingiberis,	f. $\frac{3}{4}$ vj	
		Aque,	f. $\frac{3}{4}$ iv.	M.

Dose, a teaspoonful every one or two hours.

Tannicum Acidum, in the form of a pill, gr. i.-ij. morning and evening, has been found very successful by Dr. DIBOVE. (*Arch. de Tocologie*, Sept., 1877.)

Stimulants. Recourse must be had to these cautiously, on account of the relief they sometimes give, leading to the habit of tipping. When accessible, the best is probably dry champagne, iced, of which tablespoonful doses may be given every fifteen minutes.

LOCAL MEASURES.

Cold, applied to the epigastrium, or by swallowing pieces of ice, is often beneficial.

Electricity. Dr. T. GAILLARD THOMAS, of New York, employs electricity. By means of adhesive plaster he fixes on the epigastrium one broad flat electrode, made by stitching a flat sponge to sheet rubber, and a similar one under the spine, the patient lying supine. Then a gentle current is passed, and continued steadily for ten, twelve, or even twenty-four hours. He has seen no evil result, and esteems this remedy higher than any other.

Dr. DA VENEZIA relates in the *Giornale Veneto di Science Med.*, January, 1879,) a case of chronic nervous vomiting in pregnancy which was cured by electricity. The patient was a young woman aged twenty-four, in the seventh month of her first pregnancy. She had been suffering for the last two years from frequent attacks of vomiting after food, which had been so frequent during the last month, that she had become greatly reduced in strength. The usual

therapeutic agents were then employed ; but, as no relief was obtained through them, the author resolved to try electricity. A faradic current of moderate strength was used, one of the rheophores being applied to the side of the neck along the course of the vagus nerve, and the other to the epigastrium. After the first sitting, the patient was better, and after the fourth the vomiting ceased.

Heat. TANNER mentions hot fomentations to the epigastrium and hot poultices, as occasionally useful.

Injections, either rectal or vaginal, are efficient means. Those containing opium are most useful. In the *Boston Medical and Surgical Journal*, 1879, Dr. GRENNÉ, of Dorchester, advocates the use of warm vaginal lavements for many cases of obstinate vomiting of pregnancy. He also reports a case where warm olive oil succeeded after the water had failed.

Leeches to the os have been used by CLAY, but their propriety has been doubted by PLAYFAIR. Dr. TILT mentions that in some cases the vomiting has been promptly checked after the failure of ordinary measures, by the application of a few leeches to the pit of the stomach, although there were no signs of inflammation there, and the patient was not plethoric.

Suppositories, both rectal and vaginal, containing opium or its alkaloids, are among the earliest resources indicated. As a medicated pessary, Dr. TANNER prescribes :

1439.	R.	Extracti belladonnæ,	gr. xxv	
		Extracti hyoscyami,	gr. lxxx	
		Plumbi iodidi,	3j	
		Olei theobromæ,	3j	
		Olei olivæ,	f. 5ij.	M.

For eight pessaries. One to be introduced into the vagina every night.

Oxygen Inhalations. In some obstinate cases, Dr. PINARD tried, with immediate relief, inhalations of oxygen, led thereto by the fact that the vomiting of chlorotic subjects, is often relieved by this means. (*Annales de Gynecologie*, May, 1880.)

SYMPATHETIC NERVOUS DISORDERS.

These are palpitation of the heart, headache, syncope, cough, neuralgia, pruritus, and other cutaneous diseases, hypochondriasis, affections of the sight, etc.

PROF. W. S. PLAYFAIR, M. D., LONDON,

For the *palpitation*, would give ferruginous preparations, and a gen-

eral tonic regimen. When it does not seem to result from debility, antispasmodics are indicated.

Syncope occurs generally in women of a highly-developed nervous temperament, and generally about the time of quickening. The treatment should consist in the use of diffusible stimulants, as ether, ammonia, and valerian, the patient being recumbent with the head low. In the intervals, tonics and iron are necessary.

Neuralgia is generally controlled by tolerably large doses of quinine. If caries of the teeth is present, the affected tooth should be removed without fear. Nitrous oxide gas may be administered without difficulty or risk.

ELY VAN DE WARKER, M. D., OF NEW YORK.

This writer extols the black cohosh, *cimicifuga racemosa*, for the nervous disorders of pregnancy. (*Half-Yearly Compendium*, vol. XIII., p. 176.) He says:

"Women are oftentimes the subjects of distressing symptoms as pregnancy advances. Among these are a train of nervous symptoms: Restlessness, sleeplessness, darting pains in the back, flanks and thighs, and stiffness and soreness in movement, are very common and troublesome. For these conditions I find *black cohosh*, *cimicifuga racemosa*, a sovereign remedy. I give thirty minims, or half a teaspoonful, of the fluid extract at bed-time, in cases of restlessness; and in cases of neuralgia of the lumbar or abdominal muscles, or in cases of stiffness or soreness in movement, the extract may be given in the same amount at intervals of three to five hours during the day."

THOMAS H. TANNER, M. D., LONDON.

The headaches of pregnancy, are usually due either to debility or to sympathy. The first is dull and steady, the skin cool, and the pulse feeble. Its successful management demands quinine and iron, good diet, exercise, and general hygiene. The sympathetic headache is generally limited to a small space, or a single spot. The pain is acute and penetrating. The treatment is a moderate purgative followed by tonics. The extract of *aconite*, gr. ss., every four or six hours, sometimes gives prompt relief in such cases.

In puerperal cases, *insomnia* is not unfrequently the precursor of delirium or mania. It demands, therefore, careful attention, and, if persistent, the cautious use of hypnotics.

Groundless despondency, *hypochondriasis*, is not very unusual during the period of gestation. The bowels should be acted on with rhubarb and soda, pepsin taken after the meals, and a tonic, such as the following, be prescribed :

1440. R.	Spiritus ammonæ aromat.,	f. ℥ iij	
	Spiritus chloroformi,	f. ℥ ij	
	Ferri et quiniæ citratis,	gr. xxx	
	Liquoris strychniæ,	℥ xxx	
	Tincturæ zingiberis,	f. ℥ ij	
	Aquæ,	ad f. ℥ viij.	M.

A sixth part two or three times a day.

Sometimes the union of the tonic with an alterative is desirable, as :

1441. R.	Ammonii muriatis,	gr. lx	
	Extracti cinchonæ liquoris,	℥ xc	
	Vini rhei,	f. ℥ vj	
	Aquæ menth. piper.,	ad f. ℥ viij.	M.

A sixth part twice daily.

The moral management of such cases is also important. Positive assurances of the future must be given; the demeanor must be humane and sympathizing; and the patient must be guarded from scenes and tales of suffering.

Pregnant women toward the eighth month are sometimes subject to sudden attacks of intensely acute *pain in the right side*. The treatment should be to make the patient lie on her left side, cover the region of the pain with hot fomentations containing belladonna and opium, and give a dose of an anodyne and carminative mixture.

The sympathetic *nerveous cough* of pregnancy comes on in violent paroxysms, especially at night, without expectoration or stethoscopic signs. In its treatment, he has found antispasmodic mixtures like the following to give great relief:

1442. R.	Spiritus ætheris,	f. ℥ iij	
	Spiritus chloroformi comp.,	f. ℥ j	
	Acidi hydrocyanici diluti,	℥ xv.	
	Liquoris morphiæ sulphatis,	f. ℥ j	
	Tinct. cardamomi comp.,	f. ℥ vj	
	Aquæ,	ad f. ℥ viij.	M.

A sixth part every six or eight hours.

Or,

1443. R.	Tinct. valerianæ ammon.,	℥ xxx	
	Tinct. sambulis,	℥ xx	
	Tinct. belladonnæ,	℥ x	
	Tinct. camph. comp.	℥ xxx	
	Aquæ camphoræ,	ad f. ℥ xij.	M.

For one dose.

Efforts must be continued to check the cough when violent, as its continuance sometimes leads to abortion.

CUTANEOUS AFFECTIONS.

TYLER SMITH, M. D., LONDON,

Regards *pruritus* as the result of follicular irritation of the vulva. The secretion from the surface is generally very acid, which may be relieved by washing with common yellow soap. Dilute hydrocyanic acid, Battley's solution, of each f.ʒij, and carbonate of soda, ʒij, water f.ʒvj, make an excellent wash, using only a teaspoonful at a time. A lotion of borax is good; sometimes an acidulated lotion is preferable, or a lotion of tar-water. In obstinate cases, paint the vulva with nitrate of silver, ten grains to water 1 ounce, every day or every other day; or with tincture of iodine with an equal part of water. Where the os uteri is thus troubled, inject the lotion of borax or nitrate of silver. Tepid or cold bathing, cooling diet, and aperients, are also aids in the cure. Should it assume a periodic form, quinine is the remedy.

PROF. W. S. PLAYFAIR, M. D., DONDON.

Pruritus is frequently associated with leucorrhœa of an acrid nature; or there may be aphthous patches on the mucous membrane, ascarides in the rectum, or pediculi in the hairs of the mons and labia. Sedative lotions are useful, as Goulard's, or an ounce of the solution of muriate of morphia with a drachm and a half of hydrocyanic acid in six ounces of water; or chloroform, one part to six of almond oil. A pledget of cotton-wool soaked in equal parts of glycerine of borax and sulphurous acid, may be placed in the vagina at bed-time, and removed in the morning. In obstinate cases, the solid nitrate of silver may be brushed lightly over the vulva. Generally the aperient mineral waters and bromide of potassium aid in the cure.

PROF. S. TARNIER, PARIS,

Gives this formula:

1444. R.	Deutochloride of mercury,	2 grammes	
	Alcohol,	10	"
	Rose water,	30	"
	Distilled water,	450	" M.

He employs this night and morning thus: Bathe the parts with

warm water to remove any discharges, then, having carefully dried the surface, rapidly sponge the seat of the affection with the lotion. In a few minutes wash again with fresh water. The cure is generally rapid.

Occasionally a dose of *pilocarpin* has been found to relieve the troublesome symptom promptly.

[For further suggestions regarding the Pruritus of Pregnancy, see Part I., Chap. III., under Pruritus of the Vulva.]

One of the most common cutaneous affections is *Ephelides*. Prof. NEUMANN recommends for them:

1445. R. Acidi chrysophanici,
Adipis.

1 part
40 parts. M.

Gently anoint the part, previously washed with soap and water; then apply a piece of linen to prevent staining. Repeat the application three or four times at two days' interval, being careful not to touch the eyelids and not to apply too strong an ointment on persons of delicate skin. The parts to which it is applied, become red, then black; the skin desquamates, and the stain disappears. The same remedy may be used for pigmentary stains occurring independently of pregnancy.

Urticaria and *herpes gestationis* are other forms of skin disease associated at times with the pregnant condition. Their treatment at that period is often more delicate and less successful, but in general principles it does not differ from that used under ordinary conditions.

DIGESTIVE DERANGEMENTS OF PREGNANCY.

DIARRHŒA

Occasionally is present, and PLAYFAIR regards it as due to errors of diet. It should not be neglected, as it may bring on labor prematurely. The chalk mixture, with aromatic confections and small doses of clorodyne and laudanum, will generall check it.

LEISHMAN counsels the removal of any faecal accumulations by castor oil and then the use of astringents.

CONSTIPATION.

LEISHMAN regards this as due to the pressure of the womb on the

bowel, reducing its calibre and paralyzing its muscular fibres. In other cases, a want of bile occasions it. If clay-colored stools show this, a few grains of blue pill will do good.

PLAYFAIR suggests appropriate diet, as fresh fruits, brown bread, oatmeal, etc. The aperient mineral waters answer well, and an occasional dose of confection of sulphur; or a pill of three grains of extract of colocynth, quarter of a grain of extract of nux vomica, and a grain of extract of hyoscyamus at bed-time; or a teaspoonful of compound liquorice powder, at bed-time. This condition is effectually combatted by giving, twice a day, a pill of two grains of inspissated ox-gall with a fourth of a grain of extract of belladonna. Enemata of soap and water are good. Scybalaë must be broken up and removed by mechanical means.

Dr. W. CRAIG, Edinburgh, (*Edinburgh Med. Jour.*, June, 1875,) has found the following an excellent pill for the constipation so common in females of a sedentary habit:

1446. R.	Aloin,	gr. ss	
	Ferri sulph. exsic.,	gr. iss	
	Extract. nucis vomicæ,		
	Extract. belladonnæ,	āā	gr. ss. M.
Ft. pil.	One or two pills daily,		

Another writer gives:

1447. R.	Ext. colocynth comp.,	gr. xij	
	Pulv. rhei,	gr. vj	
	Ext. belladonnæ,	gr. iss	
	Ext. hyoscyami,	gr. iij.	M.
Divide into six pills. One at bed-time. Gr. $\frac{1}{20}$ of strychnia may be added to each pill.			

ICTERUS GRAVIDARUM.

Dr. J. WICKHAM LEGG, in a recent work, states that this form of jaundice usually comes on toward the end of pregnancy, and then lasts till after delivery. When simple in form, the treatment should not be active. The bowels must be regulated by mild laxatives, and small doses of the alkaline soda salts given by the mouth as well. The older writers specially note that emetics must not be employed, on account of the danger of causing abortion.

There is one form of jaundice in which abortion is very common. This is a species of *icterus gravis*, and at times is of the nature of an epidemic. Nearly all attacked with it miscarry, and a certain proportion of them die with it. The phenomena of the disease do not appreciably differ from those of ordinary acute yellow atrophy.

The treatment should begin with a active mercurial purge, followed by sulphate of magnesia or soda. This may be followed by quinine in large doses, with an admixture of the mineral acids. Locally, a warm linseed poultice over the epigastric and right hypochondriac region. The prognosis is grave.

ALBUMINURIA OF PREGNANCY.

PROF. WM. LEISHMAN, M. D., GLASGOW,

Says antiphlogistics must only be used with the greatest caution. Baths are useful by promoting the function of the skin. Diuretics are of doubtful value.

Dr. J. S. PARRY, the Philadelphia editor, urges the following :

1448. R.	Tr. ferri chlo., Liq. ammon. acet., Ac. acetic, Ol. gaultheriæ, Syr. aurant. cort.,	f. ℥ iij f. ℥ iij ℥ xv gtt. v f. ℥ j.	M.
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Dose, one to two drachms three times a day.

It is of great importance to recognize the presence of albumen early. Such symptoms as œdema, even of the minor form, should always prompt the physician to test the urine for albumen. It may, indeed, exist, and apparently in no way affect the general health. When this is the case, active medication is needless. It will be enough to regulate carefully the diet, and maintain in normal action the secretory functions. Cases which are wholly due to the pressure of the enlarged uterus and its contents, often continue to the close of the pregnancy, and pass through confinement without any untoward accident. The avoidance of interference, therefore, and a watchful supervision of the case, embrace all that the physician is called upon to do. It must be borne in mind that the disease is one of debility, and implies impoverishment of the blood, so that lowering treatment is usually out of place, and tonics and a general diet are rather called for. Occasionally some of the mildest diuretics may be exhibited, but, as above mentioned, their generous use is of questionable propriety.

PROF. W. S. PLAYFAIR, M. D., LONDON.

Saline diuretics, as acetate of bitartrate of potassa, and watery

purgatives, as the compound jalap powder, are most useful in promoting the urinary secretion and relieving the renal congestion. Dry-cupping over the loins, frequently repeated, and the vapor or Turkish bath, will aid greatly. The diet should be mainly of milk and white of egg, and a little white-fish. The tincture of perchloride of iron, with the tincture of digitalis, acts well. The induction of labor must depend upon the gravity of the symptoms.

TYLER SMITH, M. D., LONDON,

Believes in small *bleedings* where there is distinct lumbar pain and general febrile excitement, or cups to the loins, or sinapisms. Warm and vapor baths, aided by diuretics, as acetate of potassa, oil of juniper, infusion of broom, will tend to remove the effusion, and cause the kidneys to act. Then tonics, iron, and good diet. Where the phosphatic diathesis exists, we require the mineral acids, opium, and rest.

PROF. S. TARNIER, PARIS,

At the Maternité, has for some years treated albuminuria entirely by *milk*, and with most excellent results. One litre ($1\frac{3}{4}$ pints) of milk, increased to three and four litres a day, are given, and the albuminuria rapidly diminishes or disappears. The effect is shown in a week or a fortnight.

DR. SMITH, OF PORTLAND.

At a meeting of the Maine Medical Association, June 9, 1892, Dr. Charles D. Smith, of Portland, read a paper on the above subject. The conclusions were:

1. In a large proportion of cases the cause is hyper-albuminosis of the blood, and the condition has no marked pathological significance.

2. Albuminuria from disturbed blood-pressure is common in primiparæ; in the great majority of cases to be relieved without eclampsia.

3. Labor is oftenest the exciting cause of eclampsia, by reflexly exciting the vaso-constrictors of the kidneys, the result being an anæmic kidney rather than a congested one.

4. That albuminuria, unless from some form of Bright's disease, has in itself but little significance unless associated with diminution of urea and cerebral symptoms.—*Boston Medical and Surgical Journal*, July 21, 1892.

PROF. KARL R. BRAUN, M. D., VIENNA.

Hydræmia, at an early stage of pregnancy, is ameliorated by nutritious diet, vegetable tonics and iron, tepid baths, and especially vapor baths. To neutralize the carbonate of ammonia in the blood, make use of benzoic acid, lemon juice, or tartaric acid. To obviate congestion of the head, prevent constipation by vinegar injections, aloes, jalap, etc. When exudation has taken place into the Malpighian capsules, and the tubuli of Bellini and Ferrein, the cylindrical clots must be removed from them, and new ones prevented. If the current of fluid from the bodies into the capsules be strong, then the copious use of diluents will suffice to wash away the clots. But if the urine be scanty and uræmia threaten, then the force of the current must be increased by acids, as above, and Seltzer and Vichy waters. Pills of *tannin* and extract of *aloes* are useful to restore the normal tone.

Premature delivery is not to be thought of, unless uræmia has appeared, and the life is threatened. But it will be rational to resort to this procedure if, from the duration of the disease, its severity, the quantity of cylindrical clots, the great hydræmia, the dropsy, and disturbances of the heart, lungs, brain, etc., cause fear of the existence of great degeneration of the kidneys. Should symptoms indicate the death of the foetus, operative interference may at once be employed, as its retention greatly adds to the danger to the mother.

NOTES ON REMEDIES.

Acidum Benzoicum, gr. v., twice daily in pill form, has given satisfactory results in uræmic attacks during pregnancy.

Chloralis has been tried with marked success in a few cases by Dr. E. NOEGGERATH, of New York. (*Amer. Jour. of Obstetrics*, Oct., 1878.) He gave gr.xx.-xxx. every night, with the result that the albumen immediately began to diminish, and soon disappeared entirely.

Digitalis. The diuretic powers of this drug are frequently available. It can often be advantageously used as a poultice.

Ferrum. The use of ferruginous preparations combined with diuretics is always indicated.

Hydrargyrum. All preparations of mercury should be given with great caution in albuminuria, as such patients are intolerant of this drug.

Jaborandi and *Pilocarpin* must be used cautiously in these cases, as they have ecbotic properties which may lead to abortion.

Oleum Juniperi was preferred by SIMPSON as a diuretic, but has not been approved by others.

Oleum Tiglii is occasionally called for in severe cases, to act on the bowels and kidneys.

Potassii Acetas and *Bitartras* usually secure an abundant renal secretion.

Potassii Bromidum is valuable to relieve headache and control nervous excitement.

Milk Diet. A diet of skimmed milk is probably the only remedy now known which has a radical influence on albuminuria.

CHAPTER II.

COMPLICATIONS, DISORDERS, AND SEQUELÆ OF PARTURITION.

Anæsthetics in Labor—Antiseptics in Labor—Placenta Prævia—Tedious Labor (Rigid Os, Uterine Atony, etc.)—After-Pains—Puerperal Hemorrhage—Puerperal Eclampsia—Puerperal Mania—Puerperal Septicæmia—Pelvic Cellulitis and Peritonitis (Puerperal Phlebitis and Metritis)—Phlegmasia Dolens—Puerperal Convalescence—Coccygodynia.

ANÆSTHETICS IN LABOR.

PROF. FORDYCE BARKER, M. D., NEW YORK.

Anæsthetics are of great value in preventing lacerations of the perinæum. In that form of rigidity caused by excessive irritability of the muscular fibres, the perinæum relaxes and dilates with remarkable rapidity after the inhalation of chloroform. Where danger arises from violent uterine contractions, profound anæsthesia will save the perinæum. Even in tedious labors, chloroform causes relaxation and a restoration of the normal moisture and temperature of the parts, and efficient action of the uterus is at once resumed.

PROF. KARL SCHROEDER, BERLIN.

Chloroform in labor has the same advantage as in surgical operations. It facilitates all midwifery operations. In parturition, it easily acts in a small quantity, and it is not necessary to produce complete anæsthesia merely to mitigate pain. A few whiffs relieve the acute pain, and this cannot injure mother or child. Even profound anæsthesia has not been found to influence the child, when continued for a short time.

It does not induce hemorrhage, and reduces the temperature, both favorable effects.

It cannot be questioned that chloroform is advisable in normal parturition to suppress the intense sufferings. Chloral has an equally beneficial effect.

PROF. S. W. PLAYFAIR, M. D., LONDON.

Anæsthesia is a perfectly legitimate means of assuaging the sufferings of child-birth. Chloral may be safely given when chloroform cannot. It does not relax contractions, while it produces a drowsy state, in which the pains are not so acutely felt. Hence, in the first stage, during the dilatation of the cervix, it is most useful; especially in those cases where the pains are intolerably acute, with but little effect on the labor, 15 grains may be given every twenty minutes, for three doses; the patient becomes drowsy, dozes, and wakes up as each contraction commences. Rarely is a fourth dose required. It does not interfere with the use of chloroform, but of the latter, less will be required. It is a very valuable aid in the management of labor.

Chloroform should only be given during the pains, and never to unconsciousness. Watch its effects: if the pains lessen in force and frequency, stop its inhalation, beginning again when the pains are stronger. It is believed that the addition of about one-third absolute alcohol, will increase the stimulating effects and diminish its tendency to cause undue relaxation. As the head distends the perinæum, it may be used more freely, and even to complete insensibility just before the child is born.

Ether acts well, and does not relax the uterus, and even seems to intensify the expulsive force.

Bear in mind the tendency of chloroform to produce uterine relaxation, and hence take extra precautions against post-partum hemorrhage.

In operative midwifery, complete anæsthesia is required, and here the operator should employ the aid of another physician, and his undivided attention should be given to the anæsthetic, while the operator is otherwise engaged.

Dr. ROBERT P. HARRIS, American editor of PLAYFAIR, says that in the United States, chloroform is rarely used in midwifery, but preferably pure sulphuric ether. After anæsthesia, uterine inertia is very apt to follow, and the result is post-partum hemorrhage.

CILARPENTIER, (*Bulletins et Memoires de la Soci  t   Obstetricale et Gynecologique, Paris,*) sums up his personal experiences in the fol-

lowing propositions: 1. Chloroform given in small doses, produces a condition of physical and normal calm in the patient. 2. If the inhalations are prolonged for a considerable time, the result will usually be an attenuation of the uterine pain. The perceptions of the patient become less keen, and the uterine contractions are slower. 3. If the period of complete anæsthesia is reached, with analgesia, there is surgical and not obstetrical anæsthesia. 4. In some cases, chloroform excites instead of calming, and in such cases its use should be discontinued. 5. In some cases chloroform has unquestionably diminished the retractability of the uterus, and has thus been the cause of more or less severe hemorrhage after labor. 6. Chloroform has no action upon the fœtus. 7. Chloroform given during the period of expulsion, has a less decided effect upon the contractions of the abdominal muscles and the resistance of the perineum, than is generally supposed. The sensation of pain at that period is not entirely abolished, the contractions are frequent, and CHARPENTIER has failed to notice that which has been called by CAMPBELL "dissociations of the sensations of touch and pain."

Chloroform is specially indicated: 1. In primiparæ who are nervous and excitable, and in whom pain may even cause delirium; also, in those with whom labor is greatly prolonged, thus becoming a source of danger. 2. In all cases in which there is spasm, contraction or rigidity of the neck or body of the uterus. Contra-indications are the absence of severe suffering, the existence of placenta prævia, general prostration, disease of the circulatory or respiratory organs, cerebral diseases, alcoholism, etc. During the period of dilatation, chloroform is most required, but only to the extent of obstetrical anæsthesia, as a rule. It sometimes gives rise to nausea, vomiting, headache and various nervous troubles. Hæmorrhage is not likely to result unless the anæsthesia is profound. Chloroform cannot cause convulsions; on the contrary, it is one of the best means of relieving them. It may also be useful in warding off puerperal mania, from those patients in whom the intense pain of parturition might lead to such a result. DUTERTRE has found reports of forty cases of sudden death during labor, attributable to chloroform, but of that number, thirteen should be eliminated as irrelevant. Of the others, some had cardiac or pulmonary disease, some suffered from alcoholism, and in others the narcosis was too profound.

A first condition in the use of chloroform, is that it be chemically pure. Death from respiratory syncope may follow the use of an im-

pure article. Small quantities should be given, the patient being in the horizontal position, and there should be an interval between successive inhalations. Subcutaneous injections of antipyrin, 0.25 gramme (4 grains) at a dose, have been used in a number of cases to produce obstetrical anaesthesia. CHIARE and GUÉNIOT report good results from its use. Various mixtures have been suggested, in most of which ether, chloroform or chloral is an element. DOLÉRIS has advised the local use of a five-per-cent. solution of cocaine muriate, to mitigate the pain of labor, but the author expresses his views upon the subject as follows: 1. Nothing can be applied to relieve the pain caused by the distension of the lower segment of the uterus, which causes the suffering during the contractions. 2. Applications of cocaine may give relief if they reach the nerve-endings of the supra- and infra-vaginal portions of the cervix, and the nerves of the vagina. Thus the pain of dilatation may be modified. 3. For the pain produced by compression of the nerve-trunks of the pelvis, no application will avail. 4. The pain in the vulva and vaginal mucous membrane during expulsion may be somewhat modified by local applications.

As to the value of hypnotism in parturition, it must have limited range. Of thirteen cases in which it was tried, it was successful in only four, the patients all being of a hysterical temperament.

PLAYFAIR, (*British Med. Jour.*, London,) believes that chloral is a remedy of almost incalculable value in prolonged first stage, and one which practically supersedes all other methods of dealing with this troublesome complication. He has been constantly using it since 1874 with the best results. Since that time he has practically never had any trouble from the thin, rigid cervix. Under the use of this agent the pains become longer, steadier and more efficient. The patient falls into a somnolent condition, dozing quietly between the pains, which are not lessened or annulled, as is the case when chloroform is inhaled freely; and, above all, the wild state of excitement, which is so frequent in this class of labor, is calmed and soothed, to the infinite relief both of the patient and the physician. Nor is it necessary to administer doses of any unsafe amount. Fifteen grains (1 gramme), repeated in twenty minutes by mouth or rectum, is generally sufficient to produce an effect lasting over several hours. Possibly, a third dose may be required, but never more.

Another great good attending this practice, is that when the expulsive stage is reached, the patient being already in a state of semi-

anæsthesia, very much smaller quantities of chloroform or of the A. C. E. mixture are required than would otherwise be the case. Since using chloral in this way, PLAYFAIR has never had occasion to give opiates, either by the mouth, rectum or hypodermic injections, and he believes them to have the disadvantage of tending to arrest uterine action altogether, instead of steadying it, or even increasing it, as is the case with chloral.

MISRACHI, (*Journal de Médecine de Paris*,) has used antipyrin to alleviate the pains of parturition in twenty-one cases, obtaining notable relief in only six instances. He concludes, from his experience, that it is not an obstetrical anæsthetic. Its useful action is only obtained in certain painful complications of labor, such as uterine contractions accompanied by exaggerated pain, as is observed in posterior positions of the vertex, premature rupture of the membranes, spasmodic contraction of the cervix, etc. If the action of antipyrin is inconsiderable in the pains of labor, it has, on the other hand, a very marked effect upon the after-pains. Whatever may be the cause of these pains, antipyrin has succeeded in more than eighty per cent. of the cases, and its action is absolutely constant when the pains are provoked and kept up by the administration of ergot. He makes only one exception to this rule, and that is in cases where there is a retention of a portion of the secundines, or a clot. In such cases, the first thing to do is to empty the uterus, and give hot irrigations, after which the antipyrin may be given with excellent results in relieving after-pains.

THE USE OF ANÆSTHETICS DURING LABOR, IN SUBJECTS OF ORGANIC DISEASE OF THE HEART.

BUTLER, (*Brooklyn Medical Journal*, December, 1891,) believes that valvular disease *per se* is not a contraindication. The outcome depends very largely upon the condition of the heart-muscle and the degree of compensation present. A first sound of good muscular quality, a murmur accompanying and not replacing first or second sound, absence of notable dyspnoea and œdema of lower extremities, absence of marked venous fulness, form a satisfactory clinical picture. The opposite conditions are suspicious. The principal element of danger attending labor in cases of cardiac dis-

case appears to be the fixation of the thorax, and the violent, more or less voluntary, expulsive efforts attending the pains. The normal negative pressure or force of thoracic aspiration is *nil*, or converted into a positive pressure, which hinders instead of assisting the circulation of the blood. This condition is clearly evidenced by the flushing of the face, the venous fulness, and the increased action of the heart. It must necessarily put a serious tax upon a weak or degenerate heart-muscle. The problem, then, is, whether to allow the heart to struggle against the obstacles caused by the more or less voluntary expulsive efforts, or to annul the latter by anæsthesia, substituting the risk of the latter for the inevitable risk of the former.

It is difficult to give a categorical answer. The advantages of an anæsthetic are obvious in annulling pain, which is undoubtedly a serious source of depression, and in lessening or stopping involuntary expulsive efforts.

The proper course to pursue, so far as it can be outlined, is to use primarily, all suitable medicinal means for sustaining the heart action. If the patient is not doing well, give chloroform tentatively, substituting ether at a later period if necessary for its early stimulant effect upon the heart.

This was essentially the course pursued, with good results, in three cases of the kind under discussion.

The medicinal treatment of cardiac disease during labor requires allusion. Digitalis is commonly and rightfully administered. It should be remembered that it has the power of contracting the arterioles as well as strengthening the cardiac systole and prolonging the diastole. Strophanthus is not open to this objection, but is not as certain or reliable in its effects. Nitroglycerin is of much service, given alone or with digitalis. Toward the close of labor, its utility would be questionable, as tending toward uterine hemorrhage. Strychnia is of great use in energizing the cardiac muscle and the centres of respiration and circulation. Caffein, in doses of at least five grains, is very useful. The ordinary small dose is of little service. Camphor, sparteine, and musk should not be forgotten.

In pulmonary disease, as severe asthma, bronchitis, or bronchopneumonia, especial reliance should be placed upon the administration of strychnia, nitroglycerin, oleum terebinth, atropia, and ammonia.

Finally, in both cardiac and pulmonary disease existing during

labor, and attended with engorgement of the right side of the heart, the propriety of venesection should be considered.

PROF. WM. T. LUSK, M. D., NEW YORK,

In a paper "On the Necessity of Caution in the Use of Chloroform During Labor," states the following:

I. Deep anæsthesia, carried to the point of complete abolition of consciousness, in some cases weakens uterine action, and sometimes suspends it altogether.

II. Chloroform, even when given in the usual obstetrical fashion, namely in small doses, during the pains only, and after the commencement of the second stage, may, in exceptional cases, so far weaken uterine action as to create the necessity for resorting to ergot or forceps.

III. Patients in labor do not enjoy absolute immunity from the pernicious effects of chloroform.

IV. Chloroform should not be given in the third stage of labor. The relative safety of chloroform in parturition, ceases with the birth of the child.

V. The more remote influence upon the puerperal state, of large doses of chloroform during labor, is a subject that calls for further investigation and inquiry.

With these five propositions, she is prepared to close his indictment against chloroform in midwifery. It is not a formidable one, and need not deter from its cautious employment. But the sense of possible danger which governed its use in the hands of those to whom we owe its introduction into practice, has been replaced by an overweening confidence.

PROF. R. BARTHOLOW, M. D., PHILADELPHIA,

Says, when labor is of short duration, and not excessively painful, anæsthetics are not to be used. But when the labor is protracted, and suffering great, they favor progress, and prevent exhaustion and uterine inertia. Caution is required with primiparæ. Inhalation should not begin till the close of the first stage, unless there are "nagging pains," and only during a pain. The effect must be watched, and the inhalation stopped if the pulse fails, the respiration becomes short, and the pains lose efficiency. Complete unconsciousness is not necessary.

In instrumental delivery, anæsthesia is important; it facilitates

the operation, and prevents shock. It must be carried so far as to insure quietude of the patient, but not complete muscular resolution. In *turning*, chloroform narcosis must be deep enough to suspend uterine contraction.

NOTES ON REMEDIES.

Alcohol. In default of other anæsthetics, a full dose of whiskey or other spirits is a popular obtunder of pain. By some obstetricians, there is used as an anæsthetic a mixture containing alcohol, as that proposed by the Medico-Chirurgical Society of London.

1449. R.	Alcoholis,	1 part	
	Chloroformi,	2 parts	
	Etheris sulph.,	3 parts.	M.

Chloral has been suggested, but its absorption is slow and its results uncertain. Injecting it into the veins, after the method of Dr. ORE, of Bordeaux, is said to be dangerous. PLAYFAIR prefers chloral to chloroform; he gives gr. xv. at a dose, and repeats in twenty minutes, if necessary. Dr. A. F. WATKINS, (*Amer. Practitioner*, March, 1880,) has derived great advantage from fifteen to twenty grains of chloral in cases of rigidity and spasm of the cervix. The dose may be repeated every twenty minutes, as required.

Chloroform. SIMPSON recommends chloroform to be used in labor, by laying a single fold of a handkerchief over the nose and mouth, and dropping the anæsthetic upon it, a single drop at a time. In this way it becomes thoroughly mixed with air, and is entirely safe. Drs. J. RINGER, PLAYFAIR, and others, believe that chloroform, weakens uterine contraction. According to a recent writer in *La Presse Médicale*, chloroform acts more vigorously and persistently upon the retractility than upon the contractility of the womb. To secure this action, prolonged inhalations, rather than complete anæsthesia, are desiderated. The contraction of the abdominal muscles is more diminished by the chloroform than is the uterine contraction. But whilst both these effects of this anæsthetic are in proportion to the intensity of the anæsthesia, they disappear rapidly, indeed almost instantaneously, on the cessation of the inhalation, whilst the diminution of uterine retractility continues longer. Dr. GEHRUNG, of St. Louis, thinks that the poisonous action of chloroform, is intensified by ergot, both being cerebral anæmiants.

Ether. Pure, well-washed sulphuric ether is claimed by many to combine more in its favor as an anæsthetic in labor, than any other agent. But, as Dr. R. P. HARRIS points out, (notes to PLAYFAIR'S *Midwifery*,) only in exceptional cases does it act satisfactorily. In many, it induces in-

toxication and excitement, and diminishes or stops the expulsive efforts and leads to uterine inertia and consequent post-partum hemorrhage. Its administration should be preceded by a small dose of brandy, to prevent gastric disturbance.

Hypnotism or Mesmerism. This artificial condition of anæsthesia has been induced to blunt the pains of labor, and it is stated with complete success. A case was recorded by Dr. W. B. FAHNESTOCK, in the *Boston Medical and Surgical Journal*, vol. xxxv., No. 10, in which a woman was delivered of a full-grown, healthy child, while in a state of "artificial somnambulism," without feeling a pain or interfering with the natural contractions of the uterus. In a work published later by the same writer, (*Artificial Somnambulism*, p. 316, 1869,) he states that in many other cases he has used the same means with equally satisfactory results.

Morphia. The hypodermic injection of morphia has been found to arrest uterine contraction, and it is therefore not adapted to labor.

Nitrous Oxide, a safe and agreeable anæsthetic, produces an influence of too short duration to be conveniently employed in obstetrics.

ANTISEPTICS IN LABOR.

SCHROEDER and MARTIN, of Berlin, and others, do all the operations about the vagina under a constant stream of carbolized water. An irrigator being filled with a two per cent. solution of carbolic acid, one of the assistants directs the tube so that the wound is kept protected from the air; a rubber sheet under the patient is gathered at the bottom near the floor, and conducts the fluid to a receptacle.

Prof. STADFELT, of Copenhagen, (*Centralblatt für Gynecologie*, No. 7, 1880,) maintains that not only the mortality but the morbidity of the patients is diminished by the antiseptic precautions. The method adopted by him, is methodical washing out of the vagina before delivery, the application of carbolic vapor spray during the delivery, and intra-uterine injections with carbolic lotion after delivery. He expresses his astonishment that the application of carbolic spray, has found so little acceptance in lying-in institutions, stating that in the Copenhagen Maternity it has been for years in use for every labor, without having caused any injurious results to mother or child. He states, also, that its application causes so little trouble, that he cannot see why a method so reasonable for a

lying-in institution, should be summarily pushed aside. The spray must be commenced from the moment when the parts of the child begin to show themselves at the vulva, until any tears which may have occurred during the delivery, are united by suture, and the genital opening is covered with a layer of prepared jute. The intra-uterine washings after delivery, have been found specially beneficial under certain conditions, although he has only used a three per cent. solution, but in large quantity. In hundreds of cases he has never observed any evil results from these injections.

In the Obstetric Hospital of Prague, the antiseptic method is rigidly observed under the directions of Prof. B. VON WEBER. Every physician, student and midwife is supplied with a two per cent. solution of carbolic acid, permanganate of potassa, soap, nail-brush and scissors, and before entering a ward must wash the hands in soap and water, use the brush, and then the disinfecting fluid.

Near the end of pregnancy, if there be much leucorrhœal discharge, if it be fœtid, or if the patient be feverish, a two per cent. vaginal injection is cautiously given twice a day.

A woman taken in labor, is put on a bed which has been carefully cleaned and purified. Her hands and nails are thoroughly cleaned, and they, as well as the genital organs and lower parts of the body, are washed with a two per cent. solution of carbolic acid. During the course of labor, after the membranes burst, a three per cent. solution is injected into the vagina every two hours, especially where the amniotic fluid is fœtid, where the child is known to be dead, where the membranes have burst and the head not yet engaged in the pelvic cavity, where the patient is feverish, where the presentation is abnormal, where the patient has come from the general hospital, or where the placenta is retained. When once the perinæum begins to be strained, two hand sprays are brought into use and continue to play till the placenta has been removed. For the first three days the vagina is washed out three times a day, and afterwards twice a day till the lochial discharge ceases. If it at any time becomes putrid, a three per cent. solution is used every three hours. In all cases where instrumental or more than ordinary manual interference is necessary, the steam spray is used. The lochial discharge is received on napkins, which are rendered antiseptic before being applied, or on carbolized cotton-wool, which is afterwards burned. Further, three per cent. intra-uterine injections are given where

there has been any special manual or instrumental interference, where the labor has been protracted, where the fœtus has been dead, where gas or putrid amniotic fluid has passed from the uterus, where the temperature has risen, and where delivery has taken place on the street.

In the following classes of cases, intra-uterine injections of three to five per cent. carbolic water, or one to three chlorine water are used, viz., when the temperature is raised and where there is a suspicion of infection, where shivering takes place, and where the lochial discharge becomes fœtid. The conditions which are held to contraindicate intra-uterine injections are spasmodic contraction of the cervix uteri, or in the later days of the puerperium, complete involution of the vaginal portion, para- or perimetritis, deep lesions of the cervix, or rupture of the uterus.

It is, of course, difficult to carry out in private practice, the full details of the antiseptic method as practiced in hospitals. But a modified and valuable form of it, is not difficult of application. One such is recommended by Dr. WILLIAM L. REID, physician, accoucheur to the Western Infirmary, Glasgow. (*Glasgow Medical Journal*, June, 1881.) It is as follows:

Let every labor-expectant, provide herself with a two-ounce bottle of 1 to 20 carbolic oil and same quantity of carbolic glycerine. When labor sets in and a vaginal examination is to be made, let the practitioner oil his whole hand, after having washed it thoroughly and passed it through a 1 to 30 watery solution, made by reducing the carbolic glycerine. Let the carbolized oil be used in this way every time an examination is made. This would serve two good purposes—less vaginal mucus would be removed by the finger, and a film of carbolized oil would be left to prevent septic mischief in the canal. After the labor is over, the external genitals are to be bathed by the nurse with a warm 1 to 20 solution, and a napkin applied, on the face of which is laid a piece of lint damped with the oil. This bathing and dressing to be kept up for at least a week. These precautions would do away greatly with the risk of infection, and yet would not involve unreasonable trouble on the part of the attendants.

In the case of a woman delivered of a dead child, where the placenta and discharges are foul, it is desirable to wash out the vagina twice a day with a pint of warm carbolized water, using a syringe with a metal or vulcanite vaginal point, which possesses

only lateral exit holes. This would prevent decaying material from adhering, if the point be not too old, properly washed and kept in a carbolic solution. None of the fluid could be forcibly and dangerously injected into the uterus, even with only very moderate care in the use of the instrument.

In simple forceps cases, if no previous vaginal examination has been made with the unprotected fingers, it is unnecessary to wash out the vagina, either before or after the operation, but simply to freely carbolize the hands, instruments, and napkins used. It is not advisable to wash out the vagina before the operation, because it deprives it of its natural and valuable lubricating mucus, and because, presumably, no air has had access to it; nor afterwards, because the strongly carbolized oil will serve the purpose for some hours. But, on the other hand, if there has already been much vaginal manipulation, it is desirable to begin by washing it out with carbolic water, and then lubricating it freely with the oil. After every case of operative interference, the vagina should be washed out twice daily for a week, and carbolized lint, gauze, a sanitary towel, or some such dressing, applied to the vulva.

Where either bipolar or ordinary podalic version is practiced, or where there is any such often repeated manipulation as is involved in the removal of the cranial bones, and in embryulcia, the spray should be used as well as the oil, else the frequent introduction of a little air would be pretty certain to lead to decomposition of the uterine fluids.

No vaginal examination should be made without the use of an antiseptic ointment. The following is recommended by Dr. REID:

ANTISEPTIC LUBRICATING OINTMENT.

1450. R.	Pure soft soap,	$\frac{z}{3}$ iiij	
	Glycerine,	$\frac{3}{4}$ j	
	Carbolic acid, crystals,	grs. xxx	
	Oil of bergamot,	q. s.	M.

Apply after thoroughly cleansing the hands or instruments.

ANTISEPTIC UTERINE POST-PARTUM INJECTIONS.

As is mentioned above, by some, these injections are recommended after delivery, in every case; by others, only when there is especial cause to fear septic contamination. SCHROEDER, of Berlin, has used as strong a solution of carbolic acid as 5 per cent. But later observers are convinced that this is attended with risk.

Dr. HOFMEIR, of Berlin, thus speaks on this subject: "It has of late been advised, in the prophylaxis of puerperal fever, to irrigate the vagina, cervix, and uterus in all cases, with a two per cent. solution of carbolic acid. I wish to show the not inconsiderable danger of this method, resulting, in my opinion, from the necessity of bringing hand and instruments in direct contact with large raw surfaces; besides, we have not the conditions so completely under control that we can guarantee the absolute cleanliness of instruments, &c. Of two hundred and sixty normal cases of recently-delivered women whose uteri I injected, forty-two became ill with inflammatory affections of the genital tract, or 16 per cent. Of two hundred and forty-nine not so treated, nineteen became ill, or 8 per cent. Of the first series, eight were dangerously ill; of the latter, only one. These statistics are serious. The circumstances are, however, considerably altered when, during the birth, gangrene, decomposition, and formation of gas in the uterus, and subsequently, fever, develop themselves; when we consider how fatal is this condition under an expectant treatment, according to Standes' statistics—deaths, 50 per cent.; illness, 57 per cent.; undisturbed recovery, 43 per cent. We must seek to remove decomposing masses, or at least to make them innocuous, and for this purpose a five per cent. solution is required."

The dangers likely to accrue from such injections are—1. Severe pains and convulsions from the shock of the uterine injection being present, even where the antiseptic used was only one per cent. in strength, so that it could not be the cause of the alarming condition. 2. Over-distention of the uterus may also occur, and this leads to severe pain, and may induce inflammation. Another danger (3) is the possibility of infecting a patient with a syringe not thoroughly cleansed, and, to obviate this, an ordinary double catheter of vulcanite is recommended.

In a recent discussion Dr. ATTHILL pointed out the great value of these injections, and expressed his opinion that a one per cent. solution of carbolic acid used twenty-four hours after delivery is quite safe.

PLACENTA PRÆVIA.

DR. ISAAC E. TAYLOR, NEW YORK.

This author, (*Trans. of the Amer. Gynecol. Soc.*, 1878,) remarks that the methods which have been adopted in the management of placenta prævia are:

1. The tampon.
2. Version, internal or external, or both.
3. Partial circular detachment of the placenta. (BARNES.)
4. Complete detachment. (SIMPSON.)
5. Lateral detachment—usually adopted.
6. The forceps.
7. Induction of premature labor.

As a tampon our author prefers the ordinary surgical bandage. After the external parts have been lubricated, the bandage is introduced into the vagina and packed firmly and securely, one end being allowed to hang from the vulva, so that by one pull the whole tampon may be removed.

The tampon not only arrests hemorrhage, but stimulates uterine action and paves the way for version or the forceps. *Ergot* may be given carefully, and according to the nature of the case, to increase the uterine action after the tampon has been inserted. After from one to three hours the tampon may be removed, and, as a rule, the patient can be at once delivered.

The advantages of early version are considerable, and the fears about it which have been expressed by some writers, are groundless. In the majority of cases the use of the forceps is not necessary. The induction of premature labor is called for in a small number of cases.

DR. ENOCH W. KING, OF NEW ALBANY, IND.,

Has published the analysis of a large number of cases of placenta prævia, treated by various means. (*Amer. Jour. of Obstetrics*, Oct., 1880.)

In regard to *ergot*, there appears to be little doubt that it exercises a favorable influence if administered in suitable cases, and at the right time. This means that we should be guided in its administration by the same rules as in ordinary labor; that is, until there is a demand and an opportunity for expulsive, not dilating pains. It is

especially dangerous to the child when there is a complete presentation of the placenta, thus forming an obstruction to the delivery.

Completely detaching the placenta usually controls the hemorrhage, but is almost invariably fatal to the child. *Evacuation of the liquor amnii* cannot be recommended, on account of the danger resulting from occult hemorrhage. The *tampon* is of doubtful efficiency, and very certainly increases the risk in many cases to both mother and child from intra-uterine hemorrhage. The use of the *forceps* as a means for hastening delivery, has been found wanting. The most satisfactory results have been from *version*, performed as early as possible, together with the administration of ergot at the appropriate moment, to secure efficient uterine contractions after the contents of the womb have been expelled.

WM. T. LUSK, OF NEW YORK.

It is now accepted, says WM. T. LUSK, of New York, that the time to act is at the occurrence of the first hemorrhage. Delay in the interest of the child, means too often the sacrifice of both lives.

If the diagnosis of placenta prævia has been made, ascertain the extent of cervical dilatation. If the cervix is closed thoroughly, disinfect the vagina and employ the tampon. At the end of eight hours the tampon should be removed and the vagina irrigated with a 1 to 3000 corrosive-sublimate solution.

By this time, the cervix is in most cases dilated sufficiently to admit two fingers; with this degree of dilatation, version should be performed by the Braxton-Hicks method, and an extremity of the child be brought down into the vagina. The rest can be left to nature if the pains are good. When they are defective, slight traction should be made on the extremity, sufficient to check hemorrhage. Of course, the infantile mortality has been large, but a study of the statistics by the other methods, shows scarcely better results.

The only competitive plan for the one just described is that of BARNES, which is as follows:

1. Rupture the membranes.
2. Apply a firm binder over the uterus.
3. A plug may be used to gain time, but it must not be trusted; watch it closely.

4. Separate all the placenta that adheres within the lower zones, and observe closely. If no hemorrhage, wait awhile—the uterus may do its own work; if not, dilate the cervix by means of the water bags.

Again pause and observe. If nature fails to deliver, resort to the forceps—which gives the best chance to the child—or turn.

LUSK thinks that neither plan should exclude the other, as both are good and have greatly reduced the mortality in placenta prævia. The choice should be somewhat determined by the aptitude of the operator. BARNES' plan probably requires, for successful execution, a greater degree of obstetric experience and manipulative skill.

TEDIOUS LABOR.

RIGID OS AND ATONY OF THE UTERUS.

ALBERT H. SMITH, M. D., PHILADELPHIA,

In a paper read before the Philadelphia County Medical Society, (*Medical and Surgical Reporter*, August 11th and 18th, 1877,) says the causes of delay may be divided into classes: Rigidity of the os or absence of the dilatory force, or real and apparent rigidity. Spasmodic contraction of the os is a neurosis, and for its relief we require such means as quiet nervous excitement, allay sensibility, diminish the activity of the circulation, and control the local congestions. First of these is *opium*. It acts promptly, without danger, and is never contra-indicated. A suppository of one-half a grain to a grain of watery extract, or its equivalent in morphia, powdered opium, or an enema of laudanum, or the hypodermic; or in case of much fever, morphia with digitalis and diaphoretics, will be certain of good results.

Ether or chloroform may give the same, but are not so safe, and diminish the force of the contractions, and may cause inertia uteri and hemorrhage.

Passive rigidity, that is, a want of distensibility, must be met by the douche of hot water, 105° to 110°, injecting a quart at a time by the syringe against the os and cervix, and repeating every hour or two. Traction by the finger upon the anterior lip is here of great value, though not when there is spasm. When the membranes are not ruptured, care should be taken not to do this. The India-rubber bags are valuable dilators—that of BRAUN, of Vienna, or better, the fiddle-shaped bags of BARNES; they should be filled with warm water until fully expanded. After dilatation has given

room, apply the forceps within the lips, and thus gain an additional dilating power. There can be no more risk to the tissues than by the passage of the head without them. During entire contraction the forceps may be gently drawn upon.

Incision is justifiable only under extremely rare conditions.

In delay from absence of the dilating wedge, which is the most common cause of delay, this is often the result of inertia, and may be met by abdominal frictions, diffusible stimulants, ginger, balm, mint, or other hot teas, hot and cold douche, etc. The best of all is the *bisulphate of quinia*—say 15 grains in one dose.

When the preternatural distention of the amniotic sac stretches too greatly the uterine fibres, its rupture will generally speedily correct the evil. Irregular contractions are best met by the quiet and rest of opium, anæsthetics, chloral, etc.

Premature labor would also cause delay, and require opium or chloral for relief.

In cases of disproportion of the head and pelvis, the one abnormally large, or the other small, the only remedy is to carry the forceps within the os, and the accomplishment of the delivery as above detailed.

W. H. LONG, M. D., LOUISVILLE, KY.,

Speaks of *viscum album* or *mistletoe* as an oxytocic. He has used it for ten years. It acts with more certainty and promptness than ergot, and does not cause continuous or chronic contractions. The fluid extract is preferable, in doses of a drachm, repeated every twenty minutes until the desired effect is induced. The infusion is made by taking 2 oz. of the dried, or 4 oz. of the green leaves, pouring over them one pint of boiling water, covering until cool enough to drink. Dose, two to four ounces, repeated in twenty minutes, if necessary. He has seen excellent results follow its use in post-partum hemorrhage and in menorrhagia.

J. H. BENNETT, M. D., OF OHIO,

Proposes, (*Detroit Lancet*,) to facilitate and shorten labor by giving a hypodermic injection of morphia. gr. $\frac{1}{4}$. When rest has restored the nervous energy, he places the patient on her back, the thighs flexed, the shoulders bolstered up, the smaller or lumbar portion of the spine down, so as to form a curve, the convexity of which is down; thus the axes of the two straits form a continuous curve.

Labor commencing, the os is gently pulled forward by the index-finger, causing dilatation, at the same time pressing the fundus gently upwards and back so as to bring the child in proper relation with the lower strait. During the passage of the head into the lower strait, he continually draws forward the anterior lip of the os, at the same time pressing the anterior portion of the os back under the os pubis, with other soft tissues that protrude with the anterior portion of the os and neck, which narrows the antero-posterior diameter. As the os dilates under the forward and lateral pressure, during the interval of pain, the anterior lip of the os passes back under the arch of the pubis, and finally over the occiput; thus increasing the antero-posterior diameter and facilitating very much the passage of the head, also saving the contusion of the urethra, which so frequently occurs.

After this stage he protects the urethra and tissues adjacent, by pressing upon the occiput forwards and downwards with the digital and middle fingers, each side of the urethra, until it passes from under the os pubis; thus avoiding the necessity of being called to use the catheter, also preventing one of the causes of vesico-vaginal fistula, and lessening the danger of laceration of the perinæum by the occiput rising in front of the os pubis, sooner than it would if the anterior portion of os with folds of the vagina and other soft parts protruded in front of the head. In this way the pressure on the perinæum is lessened.

During the above management, if the patient is weak and the pains feeble, to induce instinctive action of the uterus and abdominal muscles, pass the middle and index-fingers of the right hand, (the palmar surface down,) back with gentle pressure downwards against the perinæum and vulva, producing the sensation of advance of the head.

PROF. W. S. PLAYFAIR, M. D., LONDON,

Where there is feeble or irregular action, a loaded rectum is often the cause, and a large enema will generally produce a remarkable effect.

Excessive distension of the uterus is relieved by rupture of the membranes. Adherent membranes may be separated by sweeping the finger or a flexible catheter round within the os. Uterine deviations must be corrected by placing the patient on the opposite side to that towards which the organ points, or when anterior, place her

on her back and apply a bandage to prevent the organ falling forward. Temporary exhaustion requires rest, as by an opiate, as 20 minims of BATTLE'S solution or an enema of the same. When pains are irregular, spasmodic and painful, chloral is of great value.

Oxytocics or remedies to increase the force of the pains, are borax, cinnamon, quinine, galvanism, and ergot. The latter has serious disadvantages to both mother and child. It is only allowable when the os is fully dilated.

Manual pressure often produces the most speedy effect. The best way is to place the patient on her back at the edge of the bed, and spread the palms of the hands on each side of the fundus and body of the uterus, and when a pain begins, make firm pressure down and back in the direction of the outlet; relax the pressure when the pain goes off, and resume when a new pain comes. The patient need not lie on her back; pressure may be made in the ordinary obstetric position on the left side, the left hand, spread over the fundus, leaving the right free to note the progress per vaginam. This plan is completely at the will of the operator, and can be nicely regulated; it imitates nature, and is without risk to child or mother. The pressure must be firm, but not rough. The use of the *forceps*, is now becoming the rule in place of the exception, to put an end to the protracted labor. It diminishes in a marked degree infant mortality. There is no danger to the mother, but often great danger from a delay in their use.

IPECAC IN UTERINE INERTIA.

DRAPES (*Der Frauenarzt*, March, 1892) says, this remedy, in simple atony of the uterus, is a powerful agent in producing uterine contraction during the first and second stages of labor.

In general, two or three doses of from 10 to 15 drops of the wine of ipecac, given at intervals of ten minutes, produce, in a short time, marked activity of uterine action and a rapid birth. It is much better than ergot, as it does not produce tetanic contraction, but only induces normal and regular expulsive efforts. *The Therapeutic Gazette*, July 15, 1892, p. 481.

NOTES ON REMEDIES.

Antimonii et Potassii Tartras, in tedious labor from rigid os, in doses of gr. $\frac{1}{20}$ to $\frac{1}{12}$ every fifteen minutes, is an ancient and often efficient method of overcoming spasmodic muscular contraction.

Amyl Nitrite. When the uterus is spasmodically contracted on the fœtus, Dr. MAURY, of New York, believes that this agent is a most valuable remedy.

Atropia is given by Dr. HORTON, as above stated, in cases where the uterus has become completely or partially spasmodically contracted on the fœtus, or on a separated placenta, in order to overcome the spasm. Dr. FRANKEL, of Breslau, recommends a hypodermic of $\frac{1}{32}$ of a grain of atropia and $\frac{1}{4}$ of a grain of morphia, with inhalation of chloroform five minutes later. The uterus relaxes speedily and yieldingly. There need be no fear of post-partum hemorrhage.

Belladonna, in the form of ointment of the extract, is an agent of renown.

Cannabis Indica. Dr. ALEX. CHRISTISON claims that *cannabis indica* equals ergot, being quicker and more energetic, but of shorter duration.

Chloral acts at times indirectly as an accelerator of parturition. Dr. WM. L. RICHARDSON remarks (*Trans. Am. Gyn. Soc.*, vol. I.,) that it seems especially adapted to that large class of cases in which the pains occur at very short intervals, last but a moment, and are very severe. Little progress is made, and the patient suffers intensely, and becomes restless and nervous. In such cases the administration of chloral is followed by the happiest results. The dose may be gr. x.-xx., repeated if called for. Dr. T. A. REAMY, of Cincinnati, says that close observation has convinced him that no bad effects on the child follow the administration of this drug.

Chloroform, administered for its anæsthetic properties, will often do away with spasmodic rigidity of the os.

Cimicifuga Racemosa is alleged by the eclectics to exert some ecboic powers.

Cimicifugin is extolled as of great value as a substitute for ergot, acting speedily and energetically. The contractions, unlike ergot, are not powerful and continuous, and hence there is less danger to the child. After labor, it allays nervous excitement and relieves the after-pains, and checks hemorrhage. (PHILLIPS.)

Ergot. The accelerator of uterine contraction is *par excellence* the ergot of the cereals; that of rye is usually employed. The propriety and rules of its use have been much and variously debated. Points generally agreed upon are that it should not be given if there is rigidity of the os, nor until the os is dilated or dilatable. The contractions it causes are continuous and violent, hence it is suited to the third stage only.

Gelsemium is a valuable remedy in cases of rigid os during labor, gtt. v. of the fluid extract every ten minutes until there is nausea.

Ipecac. In cases of irregular uterine action and protracted, agonizing, yet insufficient pains, this drug exercises the happiest powers, relieving the pain and hastening the termination of the labor. The dose may

be gr. ij. every fifteen minutes. It takes effect in about thirty minutes. A very favorite form with some practitioners is "Dover's powder" in repeated small doses, combined either with ergot or chloral, as occasion demands.

Lobelia Inflata is asserted by SCUDDER and other eclectics to be a specific in rigid os. It probably acts from its nauseating properties. They prescribe :

1451. R. Tinct. lobeliae,
Aq̄æ,

f. 3j
f. 3iv.

M.

A teaspoonful every fifteen minutes.

Oleum Ricini, in small doses, for some time before labor commences, is said to facilitate it.

Opium and its alkaloids are of advantage to control the nervous restlessness and exhaustion which supervene in tedious labor, and to lessen the spastic rigidity of the os. Small quantities, gr. $\frac{1}{8}$, of morphia, in camphor-water, may be given hourly or half-hourly. Of its employment during labor, Dr. LUSK says that from a number of observations there is no reason to apprehend any *direct* effect on the child from morphia hypodermically administered to the mother during labor. The propriety of its use, therefore, is to be determined by purely obstetric considerations. When given to meet some urgent need in the mother, it probably conduces indirectly to the welfare of the child.

Quinia. That sulphate of quinine has a direct power to promote normal labor, cannot longer be disputed. Dr. ALBERT H. SMITH, after a careful study of the subject, said some years ago (*Obstet. Jour.*, June, 1875,) that it "increases the activity of the normal uterine contractions; the pains becoming more frequent and more intense, the expulsive power being greater, while the yielding of the circular fibres of the os is more prompt; the contractions maintaining their proper intermittent character, the relaxation and rest in the interval being complete; showing in this respect an entirely different action from the continuous spasmodic contraction caused by ergot. * * * It promotes permanent tonic contraction of the uterus after the expulsion of the placenta. * * * It diminishes the lochial discharge to a normal standard. * * * Its use is followed by less after-pains than usual in a majority of cases. * * * Given during parturition it never disturbs the brain or causes its usual unpleasant effects, even in patients who at other times are very susceptible to its influence." The dose is gr. xv., repeated if necessary. Others give gr. viij.-x.

Ustilago Maidis, the ergot of maize, has been recently introduced. It is not dissimilar from other ergots.

EXTERNAL MEASURES.

Abdominal Friction is an excellent agent for expediting labor. Much force should not be used. The object is and pressure to excite uniform and effective uterine contraction by gentle frictions.

Dilatation of the os by the finger has been strongly recommended by Dr. JAMES BRAITHWAITE where the rigid os gives rise to symptoms of exhaustion. In the method he employs, the right index-finger is introduced within the os uteri, with its palmar surface toward the sacrum; the left index-finger is then passed, with its palmar surface toward the pubes, the left hand crossing over the right for this purpose. By gentle pressure in opposite directions the os is readily made to dilate; the fingers being hooked within the os, the pressure is also made downward, thus very closely resembling the natural process. As soon as the os is dilated to the size of a five-shilling piece, two fingers of each hand can be introduced for manipulating.

Electricity has been employed as a uterine stimulant, but it has proved inconvenient in practice, not easily manageable, and not very effective.

Injections of warm water in the vagina, in properly-chosen cases, will accelerate the labor without causing any increase of suffering to the mother. The only instrument required, besides a bowl of warm water, is a syringe fitted with a vaginal tube; but this apparatus can be improved by the addition of a yard of India-rubber tubing, three-eighths of an inch in diameter, joined to the vaginal tube so as to carry off the water direct from the vagina into a receptacle, thus avoiding wetting the bed. The water should be as warm as the patient can comfortably bear, and in practice it is advisable not to begin with water raised to the full temperature, but gradually to add boiling water until the temperature of about, 105° F. has been attained. The injection requires to be continued from five to twenty minutes, according to circumstances.

Hip-Baths, as hot as the patient can comfortably bear, will often expedite labor and relieve the patient in the most satisfactory manner.

Venesection, in cases of obstinate spasmodic contractions, is hardly ever necessary, now that the means above enumerated are within our reach.

AFTER-PAINS.

DR. JOHN E. RANKING.

This writer, in a very thorough analysis of the symptoms and treatment of after-pains, distinguishes between those which are of an expulsive, spasmodic, rheumatic or neuralgic origin. The preventive and curative treatment of these differ materially.

1. *Expulsive After-pains.* These are usually owing to post-partum coagula. Their prevention aims to ensure firm contraction which shall last long enough to allow durable thrombi to form in the mouths of the uterine vessels, and furthermore, so to regulate the patient's surroundings that the fall of vascular tension which almost invariably succeeds delivery, shall not be too rapidly disturbed. The object, then, is two-fold—(1) Efficient contraction; (2) Vascular tranquillity.

Nature's mode of ensuring efficient contraction is by affording a due proportion of rest to the uterine fibre. This may be imitated, by avoiding all hurry in the management of the later stages of labor, especially the third. The placenta must not be hurriedly expressed nor withdrawn; but we must wait until a renewed and vigorous throe shows that the organ is ready to resume contraction. The hand, after expressing the placenta, should continue to grasp the uterus firmly, yet gently, for some time; and the binder should not be applied until we are satisfied that the organ has no tendency to relax.

In some other cases, (and these occur most commonly among the poorer classes,) in which, either from the history of previous labors or from any other circumstance, we have reason to suspect great want of uterine tone, or when on former occasions we have found manual compression insufficient, we have a most powerful ally in *ergot*.

With most authors there is a want of distinction as to the exact conditions to which it is applicable and the period at which it is indicated. There are, for instance, numbers of persons who suffer horrible tortures from after-pains, but to give them ergot is only to increase their agony four-fold; and why? Simply because the pain is not expulsive, but spasmodic, and due not to the presence of intra-uterine coagula, but to uterine hyperæsthesia. Ergot is only useful in those cases where relaxation of uterine fibre allows bleeding from the vessels, and then only as a preventive. In very obstinate cases the addition of *liquor strychninæ* m.v. is very useful.

The time at which it is best given, next claims notice. It is a good rule to give 5j. or 5ij. when, as far as one can judge, delivery will be naturally accomplished in about fifteen minutes. By this means, no undue strain can be put upon the maternal structures, nor perilous pressure upon the foetus, and persistent contraction of the uterine fibre only occurs when no harm is possible.

Its administration after the expulsion of the fœtus is not so serviceable, even when accompanied by manual compression, which should in no case be omitted. The difference may perhaps be partially accounted for by the difficulty of maintaining complete rest. A natural degree of vascular tranquillity is a *sine qua non* of success. In cases where the vascular tension has not fallen perceptibly, or has soon risen again in spite of all precautions, ergot has quite failed in preventing coagulation within the uterus. Vascular excitement is too often the result of want of care. Thus a patient is perhaps hauled from the foot to the head of the bed, or from one side to the other, not to mention the vile practice among the poorest, of turning back the bed and being delivered on the sacking, frequently with all the clothes on. The moving which thus becomes necessary cannot be effected without raising arterial tension considerably, and at any rate, quite sufficiently to nullify the firmest uterine contraction.

Another source of failure, is administration of alcoholic stimulants during or soon after delivery. To ensure the necessary vascular tranquillity, we must—(1.) Never allow the patient to move herself, nor move her except by gentle and efficient lifting. (2.) Never, except under absolute necessity, give alcoholic stimulants during or immediately after labor. The rule, which is so often urged in writing about post-partum hemorrhage, never to be too hasty in attempts to rally the patient from the faintness which is but assisting nature, applies here with force. (3.) Avoid all occasions of excitement and emotion.

In cases where it is possible to adopt measures for the improvement of nutrition and tone, both of the uterus and the general system, either in the intervals between successive impregnations or during the pregnancy, these should undoubtedly be employed. If, however, coagula have formed, our object must, of course, be to favor expulsion, and the sooner the better. For this purpose the best method, if it can be practiced, is *digital extraction*. If this be impossible, we are driven to the use of anodynes, not only to soothe the pain until the process is accomplished, but to assist in relaxing the cervical fibres. *Chloral* in one full dose, or, better, in smaller doses at frequent intervals, is often effectual; 15 or 20 grains, repeated at intervals of about twenty minutes for three times, is a suitable dose. *Opium* has been used from time immemorial; but the dose required is often enormous. *Nitrite of amyl* would per-

haps prove useful, as Dr. Barnes has found it instantaneously beneficial in relaxing tetanus of the uterus. It must, however, be borne in mind that its use soon after delivery, has been followed by flooding. *Chloroform* has no advantages over chloral. With either of these, ergot may be given; but as the distress is due not to insufficient action, but to increased resistance, it will be rarely necessary. The same remark applies to friction over the uterus. *Purgation*, especially if brisk, is very useful in aiding expulsion of coagula; and of all purgatives, castor-oil, with or without opium, is the best, if its use be not contra-indicated by the presence of piles. The compound scammony pill is also a very elegant and most effective purge.

2. *Spasmodic After-pains*.—The condition of the uterine fibre upon which these depend, appears to be so entirely an expression of a general constitutional habit that prevention, in the sense of obviation of the primary cause, is entirely out of the question. So closely are they bound up with neuralgic after-pains, that we may very well consider their treatment together. We must, however, make this limitation, that whereas no antecedent treatment will obviate nor apparently mitigate, in any great degree, spasmodic pains, proper and well-directed treatment during pregnancy, is most effectual in preventing neuralgic pain in the uterus after delivery.

Spasmodic affections of the uterus, as of other organs, though often occurring without any apparent cause, are very much increased by any condition either local or remote, which excites or tends to heighten reflex irritability. Thus the increased local excitement consequent upon chronic metritis, irritable uterus, hyperæsthesia during pregnancy, hypogastric pains during pregnancy, a clot in the vagina which impinges upon the cervix without invading it, may in each case give rise to very great pain. Again, retention of urine, or fæces or flatus in the intestines, and especially tender or sore nipples, will excite the same trouble.

Preventive treatment, therefore, consists in taking care that all possible causes of irritation, both local and distant, be as far as may be removed. Foremost of all, stands the precaution that the uterus contract efficiently *ab initio*; for, in persons disposed to these pains, they are doubly troublesome if the cavity has been distended. The best modes of ensuring this, are manual compression, and especially by never allowing the uterus to spend its own and the patient's strength in fruitless, unavailing efforts. This is to be prevented by judicious

use of sedatives in the early stages, and by instrumental aid during the later stages of labor. The care which is directed to a long and thorough preparation of the nipples for the office which they must fulfill, will be well repaid, and careful regulation of the bowels will also be of service. A suitable dietary is another very efficient means of lessening suffering from these pains. The fact that they are known to be habitual, should always prompt us to order a very liberal diet from the first. Thus, many a patient who, upon a light and only moderately nutritious diet, is in sleepless agony for four or five days will, if given a chop and a proper amount of her usual stimulant, within twenty-four hours after delivery, be free of pain altogether by the third day. Sleeplessness is not only potent to perpetuate these pains, but will sometimes encourage their onset. One or two bad nights, especially if combined with the regulation starvation, (which is still far too common) or with sore nipples, will often bring on these pains three or four days after delivery, even when they have, up to that time, been absent. By means such as these, we may hope, if not entirely to avert, at least to diminish the suffering which the patient must undergo.

Curative Treatment.—Premising that, whatever means we may adopt for cure, the preventive measures just indicated must in all cases form part of the treatment, we pass on to consider the various drugs which are more or less useful in different instances. Here we are met by the real difficulty of the problem, to which we owe such frequent failures. The spasmodic contractions are caused directly, at any rate in the greater number, by the ganglia which reside within the uterine walls themselves; and until we know of some drug which will control the activity of these, without also affecting the whole organism, the medicinal aspect of the question must be unsatisfactory. The various drugs which are most suitable are, chloral, bromides, morphia, atropia, henbane, camphor, cannabis indica, conia, glesmium, quinine. These may be employed both internally and as external applications. It is hard to say which is most generally useful, one often succeeding where another has failed; but in estimating the value of any one of them it is needful to remember that, except in very severe cases, the pain usually disappears naturally about the fourth or fifth day. Opium and its derivatives should best be avoided, as causing disturbance of the general functions. When the pains are distinctly spasmodic, great benefit is derived from *gelsemium*, but the dose must be large (5j.

of tincture.) In some cases distressing pains give place to quiet sleep. *Conia*, in suppositories containing one grain, is of great use, repeated every four hours. More than two are rarely necessary. The effects of these two drugs are more permanent than that of the others. Where the pain is less distinctly spasmodic, but is characterized by constant aching and tenderness in the womb, very good results come from quinine and hydrobromic acid, with a liniment of aconite, belladonna, and chloroform on spongio-piline or wool covered by oiled silk. Very severe pain yields quicker to full doses of *quinine*—four or five grains every four hours, with or without belladonna.

The rectum is the best medium for administering any drugs which are applicable to that method.

Our aim, if we wish to avoid or mitigate these pains, must be to endeavor to correct any unhealthy state of the womb, by furthering involution, later by proper treatment and by obtaining as long a period of rest for the organ as possible; during pregnancy, by preserving a high standard of health and removing causes which tend to lower nerve force; during labor, by husbanding the strength both for the uterus and patient, by securing for both proper intervals of rest, by giving support in the form of strong soups, or meat if it can be taken, and by rendering mechanical assistance as soon as it can fairly be done, if labor threaten to become lingering, without waiting for actual inertia to supervene; after delivery, by insuring efficient contraction by gentle means, by obtaining complete rest, local and general, and by inducing sleep as soon after as may seem fit. Chloral is far better than opium for this purpose, and among other reasons not the least is, that it does not prevent (as opium) uterine contraction. It is also advisable not to apply the child too early to the breast, for if it sucks vigorously before milk is secreted, great pain often results, or an irritable condition is induced, in which the uterus and its nerves are not slow to participate. If the interval between delivery and the first flow of colostrum be employed in obtaining quiet and sleep for the mother, and in giving as much nourishment in any form as she can take, avoiding excess of fluids, when the breasts fill and the child begins to draw the nipple, the uterine contractions which result, will be in most cases unperceived, or, at most, the pain will never be so great as to disturb sleep.

3. *Rheumatic After-pains* will respond best to anodynes externally, with salicin or salicylate of soda and quinine internally, and the avoidance of the sources of irritation before mentioned.

4. *After-pain connected with Utero-Ovarian Nerves.* This pain is a genuine neuralgia of the pelvic nerves, and any treatment, be its object the prevention or cure of the pain, must, if it is to be successful, be based upon this understanding. The patients who are most prone to suffer from the sepains, belong especially to that class whose physical defect lies in their nervous system. They are rarely quite free from all aches and pains, but suffer chiefly from spine-ache with tenderness on pressure over the vertebræ; from pain in the ovarian regions, especially the left; from intercostal neuralgia, mammary pains, migraine, and such like. In them a sensation which in another escapes notice is pain, ordinary pain is agony. Many doubtless willfully or unconsciously exaggerate, but as many more bear abundant witness to the reality of their suffering in their general condition. The pains which they suffer are identical with those they have felt before at the menstrual period, or when their tide of health was rather lower than usual, and depend upon the same cause, pelvic excitement. They undoubtedly require identical treatment. A girl who has thus suffered before marriage is, save in some exceptional cases where marriage itself or diversions attending it, remove the depraved nervous condition, almost sure to suffer during pregnancy and after-delivery, even though it be her first conception. Careful treatment during pregnancy, is in all these cases well repaid. Our one aim must be to combat the constitutional defect by all the adjuncts of change of scene, exercise in the open air, and any means of raising the tone both of nerve and muscle. "Early to bed" is indispensable. Everything is to be avoided which tends to excite or depress the nervous system. Local pain and discomfort are to be avoided by the use of well-fitting belts to prevent dragging on the broad ligaments, and by passing part of every day recumbent upon a couch or bed raised at the foot. Irritability or uncertainty of temper, which is very commonly present, responds best to the use of the *bromides*. These, also, as well as hot applications to the abdomen, best control too vigorous fœtal movements. If pain be present, and a tonic seems necessary, zinc, valerian, bromides, phosphorus, quinine, or bark, with hydrobromic acid, conia, etc., and other sedatives, will be most useful, and in some cases iron, especially if the periods have been pale before marriage. The four great requirements are *food, sleep, local rest, and absence of all disturbing influences*. Treatment during and after labor, must be on almost the same lines as for spasmodic pains; quinine and sedative

liniments are especially useful. Where, from the nature of the labor, much general stiffness is to be expected, good results are obtained from the use of *linct. arnicæ*, ℥x., after delivery. It is surprising in how many of these cases a small fæcal accumulation helps to keep up the pain, a contingency which should always be kept in mind.

5. *Disturbances of the Cerebro-Spinal System* do not admit of any special treatment, be they motor or sensory. Quinine and morphia are most frequently useful.

6. *Pains in the Rectum or Bladder* only demand notice to impress upon us the necessity of ascertaining that pain is not dependent upon their imperfect evacuation. Intestinal flatulent distention, however, requires closer attention. There can be no doubt, especially in persons with pendulous abdomens, that the ordinary diet of the lying-in room, consisting, as it too often does during the earlier days, of slops in inordinate quantities, is chiefly to blame for this. Some blame must also be given to want of support to the abdominal walls before labor, and inefficient bandaging afterwards. Patients who are disposed to suffer thus should have a generous diet, with very little more liquid than they usually take, and should be securely bandaged so as to exert firm and evenly-distributed pressure upon the intestines. If flatus accumulate, anti-spasmodics may be given by the mouth, or an enema of turpentine and asafœtida, whilst constipation, if present, must be corrected. If the pain be excessive, morphia hypodermically, will best relieve it, whilst curative means are in course of trial. Poultices with mustard or fomentations with turpentine, followed by laudanum on cotton-wool, often give great relief.

NOTES ON REMEDIES.

Camphora, in the form of camphor-water, or pills, gr. ij., of the powder, may be used with advantage.

Chloral, in moderate doses, will usually be found efficient.

Hyoscyamus is well spoken of by Dr. MEADOWS.

Opium and its alkaloids are extensively given, but may profitably be supplanted by other anodynes.

Potassii Bromidum is a safe, and usually efficient, sedative.

Quiniæ Sulphas, in doses of gr. x., repeated if required, has a great deal of testimony in its favor.

Hot-Water Injections. Dr. ALBERT H. SMITH, of Philadelphia, has found that

hot-water injections, 110° to 120° Fah., will always relieve, and often arrest, the most severe forms of after-pains, (*Med. Times*, August, 1879.)

PUERPERAL HEMORRHAGE.

DR. GEO. J. ENGELMAN, OF ST. LOUIS,

Gives, from his own experience, (*St. Louis Med. and Surg. Jour.*, July, 1880,) the following as the most rational and successful rules for the treatment of post-partum hemorrhage :

A.—PREVENTIVE TREATMENT AFTER INDUCTION OF LABOR.

1. Careful attention to every detail, and strict observance of obstetric rules in *every* case of labor.
2. The administration of a full dose of ergot as the head enters the vaginal orifice.
3. Should hemorrhage threaten, follow the uterine fundus with the firmly superimposed hand.
4. Express the placenta by Crêdè's method, and retain a firm grasp upon the fundus.

B.—TREATMENT OF AN EXISTING HEMORRHAGE.

1. External manipulation, pressure, and friction with the cold hand, or with ice.
2. Ergot—best subcutaneously, one or two large doses, whilst other manipulations are in progress.
3. Introduction of the hand into the vagina, and if no contraction follow, into the uterus; removal of the clots and irritation of the surface, in order to stimulate contractions.
4. The subcutaneous administration of ether.
- 4a. Ice or vinegar, if at hand, may now be tried in the uterine cavity, but if they fail, must not be persisted in.
5. The hot-water douche, which, if it is not followed by the desired contraction, will at least stimulate the patient, and cleanse the cavity, so that the final, safest and most reliable remedy may be resorted to.
6. The iron swab. This may be used at once, if the introduction of the hand and the subcutaneous injection of ether fail, or after the trial of the hot-water douche; but in desperate cases must be re-

sorted to at once, without losing time with other less reliable methods.

PROF. W. S. PLAYFAIR, M. D., LONDON,

Gives the treatment by puncture of the membranes as the most efficacious; plugging the vagina, or, better, the cervix itself; turning, of course, when dilatation admits of it, as after the previous plan; separation of the placenta, especially when the child is dead, when it is not yet viable, when the hemorrhage is great and dilatation is not sufficient for turning, when the pelvic passages are too small for safe and easy turning, when the mother is too exhausted to bear turning, when the evacuation of the waters fails, or when the uterus it too firmly contracted for turning.

This operation is performed by passing one or two fingers as far through the os as they will go; feeling the placenta, pass the finger between it and the uterus, sweep it around so as to separate the placenta as far as can be reached; if the membranes can be reached and have not been already opened, tear them. Generally the hemorrhage soon ceases.

He recapitulates: Before viability, temporize, by absolute rest in bed, cold, astringent pessaries, etc. After the seventh month, terminate the pregnancy. In all cases, rupture the membranes. If the bleeding ceases, leave the case to nature; if not, turn, if it can be done, or plug carefully, and endeavor, by compression and ergot, to bring on labor. Leave the plug in but a few hours. If necessary, use Barnes' bag to dilate; this also acts as a plug. Separate the placenta from its attachment to the cervix.

Of course, all these methods would apply for any form of antepartum hæmorrhage. The great hæmostatic is uterine contraction.

PROF. W. S. PLAYFAIR, M. D., LONDON,

He urges prevention in all cases. The hand should be kept upon the womb until the placenta is expelled, and continuous contraction kept up for at least half an hour after delivery, by grasping the contracted womb with the palm of the hand and preventing its relaxation. It is also good practice to give a full dose of ergot after the placenta has been delivered. When the previous history causes an expectation of hemorrhage, the ergot should be given, and preferably hypodermically, about ten or twenty minutes before the labor is expected to be concluded. Then any means should be taken to in-

sure contraction of the organ, and it is advisable to rupture the membranes early, as soon as the os is dilated or dilatable, to insure stronger uterine action. Care should be had in all cases where the pulse is high some ten or fifteen minutes after the birth of the child, as hemorrhage often follows. Hence, never leave a patient until the pulse falls to the normal. After speaking of pressure, he alludes to another plan: pass the fingers of the right hand high up in the posterior cul-de-sac of the vagina, so as to reach the posterior surface of the uterus, while counter-pressure is exercised by the left hand through the abdomen. The anterior and posterior walls are thus closely pressed together.

Brandy must not be relied upon. In bad cases it merely fills the stomach, and may be thrown up unaltered. It may bring on intoxication, which is mistaken for coma of syncope, etc.

A drachm of *ether* may be injected hypodermically in great exhaustion. Give fresh air, keep the head low down, so that syncope cannot occur. Empty the uterus of clots or other foreign bodies.

Intra-uterine injections of warm water, 110° to 120°, are highly recommended. This succeeds after all the usual remedies fail, especially where the uterus contracts and relaxes.

A distended bladder will often prevent contraction. Evacuate it with the catheter.

Never plug the vagina.

Compression of the abdominal aorta is a temporary expedient, and supplements other means, as also when there is great exhaustion, the firm bandaging of the extremities with the elastic bandage, to retain the blood in the trunk, and lessen the likelihood to syncope.

In the last extremity, inject the strong liquor of *chloride of iron*, diluted with six times its bulk of water, being very careful to exclude the air from the syringe.

The secondary treatment will be opium as a restorative, thirty to forty drops of Battley's solution by the mouth or in enema, quiet, beef-essence, milk, eggs, etc., in small quantities given frequently. Stimulants as demanded.

PROF. FORDYCE BARKER, M. D., NEW YORK.

This author recommends the production of contraction by pressure by the hand; the removal of any blood clots that may remain in the uterus; ice in the vagina; injection into the uterus of half an ounce of the solution of the sulphate of iron, diluted with an equal

measure of water; and internally administer thirty drops of the fluid extract of ergot with twenty drops of the tincture of nux vomica every half hour, until well assured that the uterus is well contracted. If the patient has suffered a severe shock from loss of blood, twenty drops of laudanum and alcoholic stimulants should be given, and repeated at short intervals until reaction is restored, and then give the ergot and nux vomica.

If there be a portion of the placenta retained, the ergot and nux vomica should be administered as a precautionary measure.

If the hemorrhage results from a uterine polypus, Dr. BARKER recommends its removal with the vulsella forceps. If from laceration of the vagina or vulva, involving varicose veins or arteries, he recommends ligation or such local measures as are demanded in hemorrhages.

PROF. R. A. F. PENROSE, M. D., PHILADELPHIA,

Saturates a cloth with common *vinegar*, and passes it into the uterine cavity, and squeezes it. In a paper read before the American Gynecological Society, he claims that this procedure rarely fails to stop the flow immediately. It can be easily obtained. It can be easily and instantly applied without apparatus. It has never failed in his practice. It is sufficiently irritating to excite the most sluggish uterus to contraction, and yet not so irritating as to be subsequently injurious. It is an admirable antiseptic. It acts upon the lining membrane of the uterus as an astringent.

VELITS, (*Orvosi Hetalip*, No. 10-12, 1890; *American Journal of Obstetrics*, September, 1891) reports thirteen cases treated by means of intra-uterine iodoform-gauze tampons, and presents the following conclusions:

Iodoform gauze may be considered as thoroughly aseptic in employing it for obstetrical work.

In atonic hemorrhages the iodoform-gauze tampons act as irritants and produce permanent contraction of the uterus. To obtain this result, only a small quantity should be introduced into the uterus, so as not to interfere with retraction.

In hemorrhages due to the state of the blood itself, the iodoform gauze is worthless, in fact is injurious, for it tends to keep up the hemorrhage. In these cases we can obtain excellent results by employing weak solutions of chloride of iron.

When the hemorrhage is due to a high cervical tear, the only safe treatment is the suture.

Hemorrhages associated with myomata can only be controlled by packing the uterine cavity firmly and completely with iodoform gauze.

INTRA-UTERINE TAMPON FOR POST-PARTUM HEMORRHAGE.

AUVARD (*Archiv de Tocologie*, December, 1890) considers DUEHRSEN'S plan of treating post-partum hemorrhage by an intra-uterine tampon of iodoform gauze a safe and reliable treatment. He finds the mortality in sixty-seven cases about six per cent.

The method of applying the tampon is as follows: The anterior and posterior lips of the cervix are transfixed and drawn downward with tenacula, and a strip of iodoform gauze carried by means of dressing forceps to the fundus. The other hand is placed on the fundus through the abdominal wall, while the cavity of the uterus is being filled with the gauze. The tenacula are removed, and the end of the gauze is left at the vulvar opening. The tampon should be removed in from twelve to twenty-four hours. He considers two grades of post-partum hemorrhage—viz., bleeding of moderate severity, and hemorrhage—alarmingly profuse.

In the former variety, the loss of blood may be due to uterine inertia, wounds of the vulva, vagina or cervix; and the treatment of these milder cases should include, besides ligatures and sutures, antiseptic injections of hot water, the administration of ergot and the application of the utero-vaginal tampon. When the loss of blood is alarming, uterine inertia is the cause. The bleeding should be controlled by compression and massage of the uterus through the abdominal wall, by the introduction of the hand into the uterus to remove its contents, followed by the utero-vaginal tampon.

HERR and HAUSSMANN, (*Centralblatt für Gesamte Therapie*, H. 5, 1890,) report the successful employment of rectal injections of one-half per cent. lukewarm salt water in a case of severe hemorrhage from premature detachment of the placenta. The loss of blood continued throughout a difficult version and extraction, and after delivery, the mother was in a condition of collapse, the pulse barely perceptible, and the superficial veins of the arm empty. The patient did not react, although subcutaneous injections of camphor, ether and internal stimulants, together with massage of the uterus, had been used vigorously. Transfusion and subcutaneous injection

of the saline solution were impracticable, and about two quarts of the fluid were introduced into the rectum and the pelvis elevated. The injection was repeated later, and soon after the pulse could be felt feebly returning. The following day the patient's condition had improved considerably, and convalescence was soon established.

Dr. BOTTI, in "Centralblatt für Gynæcol.," recommends *hydrastis canadensis*, in daily doses of from one to two hundred drops, an excellent hæmostatic in the uterine hemorrhage of childbirth, as well as in ante- and post-partum bleeding. He regards *hydrastis* as much superior to the *secale* preparations, and free from their disagreeable effects.

NOTES ON REMEDIES.

Acetum. Vinegar has a long-standing reputation in post-partum hemorrhage.

Dr. DAVIS, (*Obstetric Medicine*, 1836,) recommended the intra-uterine injection of one part of vinegar to two of water. It has recently been highly praised by Dr. PENROSE, of Philadelphia.

Cannabis Indica was much esteemed by Dr. A. CHRISTISON, but most later observers have failed to verify his statements. Dr. WM. DONOVAN, however, (*Edinburgh Med. Jour.*, June, 1875,) says in doses of gtt. xx. p. r. n., he never knew it to fail.

Capsicum. A teaspoonful of tincture of capsicum will often prove the best of stimulants in atony.

Ergota has been used in large doses by the mouth, in hypodermic injection, and locally as an intra-uterine application. Dr. LOMBE ATTHILL says that it is a most uncertain agent, and while most useful, if administered some time before the occurrence of the hemorrhage, is, in his opinion, seldom of much value if given after it has set in. Ergot takes at least twenty minutes to act, and besides is often, in these cases vomited. Injected hypodermically, it is capable of doing much good; but its irritating properties when thus used, render this method of employing it not altogether unobjectionable.

Erigeron Canadensis, the "squaw-weed," has a popular reputation as a hæmostatic in uterine hemorrhage. A teacupful of the infusion or five drops of the oil, may be given every half hour in light cases.

Ether has been used in hypodermic injection and as spray to the hypogastric region. The former has been especially recommended by Prof. VON HECKER, of Munich, in conditions of collapse from hemorrhage. The chief point to be attended to in making the injection, is to pass the syringe well down in the subcutaneous cellular tissue; otherwise troublesome abscesses may form at the seat of the injection. The quantity to be injected depends entirely on the pulse.

Professor VON HECKER frequently injects from two to four drachms at short intervals. The effect is very transient, so that the injection may have to be repeated.

Ferri Chloridi Tinctura, strongly eulogized by BARNES, ATTHILL, HICKS, and others as an intra-uterine injection, has been severely condemned by Dr. SNOW BECK as dangerous. In certain desperate cases it seems the only resource which is efficient. The tincture may be diluted, or used of full strength. The tube of the syringe should be carried to the fundus, and the contents gently injected: or a sponge or wad of cotton may be steeped in the solution and carried to the fundus. It should also be freely given internally in those cases where sluggish bleeding takes place for two weeks after delivery.

Ferri Sulphas and *Monsel's Solution* have at times been used, and may have some advantages over the chloride. Dr. WILSON, of Baltimore, states that the sub-sulphate should be combined with glycerine, as the simple solution acts as an irritant. Others use f. $\frac{5}{8}$ ij. of Monsel's solution to water f. $\frac{3}{4}$ vj., to wash out the uterus. It is sure to check the hemorrhage, but the sequelæ may not be agreeable.

Ipecacuanha. In some cases a full dose of this drug, bringing on rapid emesis, causes strong contraction after inertia, and promptly checks the hemorrhage.

Nitrite of Amyl has been used by Dr. E. W. KERR, (*Brit. Med. Jour.*, November 1st, 1869,) with excellent effect. Five minims were administered through an inhaler.

Plumbi Acetas. Dr. J. WORKMAN, of Toronto, (*Canada Lancet*, January, 1878,) urges acetate of lead in large doses, from one-half a drachm to one drachm: it will generally be found that in these large doses, it acts as a moderate purgative within twenty-four hours: and, if it be desirable that, in order to avoid transformation, it should be expelled from the bowels in this way, it may be better to err on the safer side, which certainly is *not* its exhibition in *small* doses. In one case, he gave six drachms in twelve hours. He quotes Dr. DANIEL CLARK and others of eminence, who give it in even larger doses, and with like good result.

GENERAL MEASURES.

Cold. This should never be neglected. Fanning the genitals, spinal ice-bags, injections of ice-water, a lump of ice in the uterus, ether or rhigolene spray to the hypogastric region, spine or thighs, are some of the methods in which it may be used. A tumblerful of ice-water flavored with brandy will sometimes act like magic, when given just after the second stage is completed.

Compression of the Abdominal Aorta may be carried out in thin subjects with delicate abdominal parietes.

Electricity and Galvanism have been found of decided advantage in some light cases, but cannot be depended upon in severe ones.

Heat is at times more energetic than cold. (CHAPMAN'S spinal hot-water bags have been spoken of for the purpose. Dr. WINDEBRAND reported, *Deutsche Med. Woch.*, June, 1876,) a desperate case where he threw into the uterus water at 120° F. by means of a uterine tube, which immediately caused a renewal of the pains, which, after an interval of five or ten minutes, and some eight or ten injections had been made in the meantime, ended in the expulsion of the whole of the contents of the uterus. Other cases have been reported by ATTHILL, MANN, etc. Dr. KOEHLER, (*Gazeta Ckarska*, No. 8, 1878,) has obtained relief in the most desperate cases by applying very hot sand-bags to the head and cardiac regions. They are particularly useful to prevent collapse, and do not interfere with other means.

Mammary excitation, by applying the child, the mouth of the nurse or a cupping-glass, to the mammæ, will occasionally excite uterine contractions.

Massage of the uterus by gentle and continued "hand-kneading" is a simple and valuable plan to awaken the muscular contractility.

Position is always of great value. "It is most important," observes Dr. J. H. AVELING, (*Influence of Posture on Women*), "that every woman suffering from uterine hemorrhage should be immediately placed in a recumbent position, with the hips raised as far above the level of the shoulders as can conveniently be effected."

Pressure. "The value of pressure on the fundus," says Dr. ATTHILL, "can hardly be overestimated. It should be combined with friction." Mr. DAVID CHRISTIE, (*British Medical Journal*, June, 1878,) describes a method of arresting uterine hemorrhage by *fluid pressure*. He introduces an elastic bag into the uterus, connected with a tube seven feet and a half in length, the free end of which, after the bag is filled, is placed in water at the proper height. Mr. CHRISTIE reasoned that, as a tube placed in an artery has a column of water raised seven and a half feet by the heart's action, so his method would effectually arrest any hemorrhage that could occur, and allow the womb to contract and relax without the pressure of the water being interfered with.

Sinapisms to the extremities are among the means currently used, but are not very efficient. These are aimed to bring the blood to the limbs. With a somewhat similar idea, Dr. MÖLLER, of Vienna, has recommended, (*Wiener Med. Presse*, No. 8, 1874,) applying the Esmarch bandage to the arms and legs.

Transfusion has been growing in favor of recent years, in desperate cases of bleeding. The forms of transfusion most employed and attended with the best results are :

1. Transfusion with defibrinated blood.
2. Mediate transfusion with pure blood.
3. Immediate transfusion from "vein to vein."
4. Immediate transfusion from "artery to vein."

The first and third methods are most generally adopted—the danger of clots is avoided. The second is generally abandoned, as leading to embolism, etc. Instead of blood, Dr. J. W. HOWE, (*N. Y. Med. Jour.*, 1875,) recommended goat's milk; and Dr. T. G. THOMAS and others have successfully employed cow's milk. The conclusions reached by Dr. THOMAS are embraced in the following propositions:

1. Injection of milk into the circulation, in place of blood, is a perfectly feasible, safe, and legitimate procedure.
2. In this procedure, none but healthy milk, drawn from the udder of the cow within a few minutes of its introduction into the vein, should be employed.
3. A glass funnel, with a rubber tube and a suitable pipe attached, is much better and safer than a more elaborate apparatus.
4. Intra-venous injection of milk is an infinitely easier operation to perform than transfusion of blood.
5. Intra-venous injection of milk, like that of blood, is commonly followed by a chill and rapid rise of temperature; but these symptoms soon subside, and are replaced by a great improvement in the general condition of the patient.

PUERPERAL ECLAMPSIA.

DR. JOSEPH AMANN, MUNICH.

Little can be accomplished in the way of prophylaxis. In treatment, the present position of science indicates that the remedies to be relied upon are exclusively the narcotics, *chloroform*, *opium*, *morphia* and *chloral*. The rule is to give whichever one is selected until it produces complete loss of control over the voluntary muscles. The first principle is *to secure complete narcosis*. To do this, successive doses must be given until the amount required to bring about this condition has been taken.

In urgent cases, *chloroform* effects this result most promptly. It should be pushed to complete anæsthesia. It is, however, not wholly without danger, especially when cardiac affections are present. *Morphia* acts more slowly, and is to be preferred when the

case is less urgent. The proper dose is gr. $\frac{1}{3}$ subcutaneously; in 15 to 30 minutes it may be repeated if indicated. The effect lasts several hours or half a day. *Opium* is best given as an enema, gtt. xxv. of the tincture in f. 5vij. of a vehicle, repeated until narcosis is produced. *Chloral* is also valuable. It is preferably given by the mouth, in doses of gr. xl.-l., in solution or as enema.

In regard to *venesection*, it should be confined to special cases, namely, those in which positive symptoms of plethora are present, and then only when the convulsions occur *before labor*; certainly during and after labor, blood enough has been lost, and there can be no sound reason offered for taking more. Experience shows that the benefits from this measure have appeared in præparturient cases.

The *wet pack*, recommended by some writers, can do no harm if properly employed, and there are cases in which it will be useful. It requires, however, to be supplemented by the administration of narcotics in the manner above described.

PROF. KARL SCHROEDER.

There are two methods of treatment, the abstraction of blood, or the use of narcotics. Venesection has often given favorable and exceedingly rapid results, but frequently the attacks have soon recurred, and then taken a more unfavorable course. A more rational treatment would be the paralysis of the activity of the voluntary muscles, and this can be done by narcotics; thus the convulsions are certainly checked for hours, and the blood is not deteriorated. SCHEINERSON has shown by experiment that chloroform diminishes the blood pressure in the arterial system. Experience is decidedly in favor of this treatment; but to be effectual, the narcosis must be absolute, so that the voluntary muscles no longer contract. As long as an eyelid quivers, another dose is required. Chloroform will do this, but as the condition must be maintained, morphia is better; or if haste is necessary, chloroform first, and replace it by subcutaneous injections of morphia. Chloral is also of great advantage, and may be used subcutaneously; or an enema of mucilage of starch, half cupful with 32 grains of chloral in an ounce of decoction of althæa.

Venesection may safely be omitted. No obstetric manipulation is required for the safety of the mother, but labor may be hastened to save the child.

PROF. W. S. PLAYFAIR, M. D., LONDON.

There are good grounds for believing that blood-letting is of only temporary use, and that it may even increase the convulsive tendency. In special cases, as where there is evidence of great cerebral congestion and vascular tension, as a livid face, a full-bounding pulse, and strong carotid pulsation, the patient being a strong, healthy woman, it may be employed. Even here, a single bleeding is all that is ever likely to be of service.

As a temporary expedient, the carotids may be compressed.

Purgatives to remove any irritant matter lodged in the intestinal tract, may act well, as the comp. jalap powder in a full dose, or a drop of croton oil, or a quarter of a grain of elaterium may be placed on the back of the tongue.

Chloroform may be used to control or ward off the paroxysm. It is advisable, however, to have a remedy more continuous in its action, and requiring less personal supervision. Chloral is decidedly this remedy, and, in combination with bromide of potassium, in the proportion of twenty grains of the former to half a drachm of the latter, repeated at intervals of from four to six hours.

Dr. HARRIS, the American editor of PLAYFAIR, has used bromide of sodium and chloral with good effect at shorter intervals, and the chloral in doses of ten to fifteen grains.

If the patient cannot swallow, it may be given by enema. The remarkable influence of bromide of potassium in controlling the eclampsia of infants, seems to be an indication for its use here.

Morphia may be given subcutaneously in doses of one-third of a grain, repeated in a few hours so as to keep up its effect.

Acetic and benzoic acid, as antidotes to uræmic poisoning, are too uncertain.

During the paroxysm, prevent the patient from injuring herself, especially biting her tongue, by placing something between her teeth.

As to the delivery, adopt that course least likely to irritate. If the fits seem to be induced and kept up by the pressure of the fœtus, and the head be within reach, apply the forceps, or even resort to craniotomy. Otherwise leave the case to nature.

PROF. FORDYCE BARKER, M. D., NEW YORK.

This physician places among the exciting causes of puerperal convulsions, anæmia, albuminuria, uræmia, indigestion, constipation, retention of urine, excessive distension of the uterus, reflex pains, or moral shocks.

As a prophylactic, he removes as speedily and effectually as possible these exciting causes by appropriate treatment. If at the advent of labor, convulsions be imminent, he abstracts from the patient a moderate amount of blood, not enough to weaken her, but sufficient to restore the equilibrium of the circulation: he does not permit the bladder to become distended. If the patient is irritable, restless, complains loudly of little annoyances, and is sleepless, he tranquilizes her by a moderate opiate.

When the convulsion has occurred, he says, bleed at once, then give a brisk cathartic, as :

1452.	R.	Hydrarg. chloridi mitis,	gr. x	
		Pulv. jalapæ,	gr. xx.	M
	Ft. pulv. No. j.	Sig.—Take at once.		

But if she be comatose, he mixes a quarter of a grain of elaterium with a third of a teaspoonful of butter, and places it upon the back of the tongue. This is to be repeated every half hour until active catharsis. To arrest and prevent convulsions, administer chloroform by inhalation.

Having overcome the immediate danger from convulsions by the means stated, he administers a full dose of morphia hypodermically.

SUBCUTANEOUS CHLORAL INJECTIONS IN PUERPERAL ECLAMPSIA.

DESHAGES, of Orléans, (*Abcille Médicin*, February 8, 1892,) considers the subcutaneous injection of chloral, a valuable method of its administration in puerperal eclampsia, where it is impossible to administer it by the mouth and there is a rectal intolerance. From his experience in seven difficult cases, DESHAGES believes it to be the safest working method of administering chloral. In all cases, an initial dose of from $7\frac{1}{2}$ to 15 grains sufficed at once to quiet the patient and to lengthen the period between the seizures. The total quantity used, was usually from 45 grains to 1 drachm, given either in three doses at intervals of eight to ten hours, or following a large initial dose, hourly, $1\frac{1}{2}$ to 3 grains. The largest quantity used was 75 grains. The effect of the large initial dose differs in individuals, according to the depth of the uræmic intoxication, the condition of the os, the pains, and the nearness of the delivery. The injections are only to be used in comatose conditions, on account of the severe pain accompanying them, unless morphia or cocaine be added. The strength of the solution should not be greater than 1 to 10, and the syringe should be very slowly injected.

DESHAGES has also used this method in the eclampsias of non-puerperal origin, with good result.

CÆSAREAN SECTION FOR ECLAMPSIA.

SWIECICKI (Przegląd Lekarski, abstracted in *Repertoire Universel d'Obstetrique*, 1892) reports a case as follows: A vii-para, who for five hours had eclamptic seizures and had been comatose. There was œdema of the lungs with a scarcely countable pulse. The os was not at all dilated. Cæsarean section was done without special difficulty, the operation lasting thirty minutes. The child was asphyxiated and could not be revived. The woman's pulse, during and after the operation, improved a little, but the coma deepened, and the woman died of œdema of the lungs. The course of this case disproves Halbertsma's assertion that the operation always has a favorable influence upon the eclampsia. Here the effect was practically *nil*. In another case, quoted by Swiecicki, there were maniacal attacks after the operation.

PROF. OTTO SPIEGELBERG, BRESLAU.

This writer, (*Trans. Am. Gyn. Soc.*, vol. ii.) states that the treatment must be directed to effect three objects:

1. The renal secretion must be restored.
2. The arterial pressure must be diminished.
3. Irritation of the nerve centres must be reduced.

These results are most easily attained by (1) venesection, (2) narcotics, and (3) if the patient be in labor, by its speedy completion.

Dr. G. M. STAPLES, (*Iowa Med. Soc. Trans.*, 1880,) strongly advises hypodermic injections of two to three drops each of tinct. rad. aconit. and Norwood's tincture of veratrum viride.

In the treatment of true eclampsia, he places *venesection* first. As soon as the patient is seen, let the brachial vein be opened and from six to sixteen ounces of blood be taken; and this be repeated unless its effects are decisive. In mere eclamptiform attacks, bleeding may be omitted. Narcotics should be administered soon after venesection. Among them, *chloroform* is the most advisable. The inhalation must be guarded, and only take place when the aura of another attack is observed. Its administration may be combined with that of morphia or chloral; the former subcutaneously, the latter by the rectum; of morphia, gr. $\frac{1}{4}$, of chloral gr. xlv., are sufficient doses to

begin with. When there is coma, cold applications to the head are useful. In the paralytic stage, stimulants must be resorted to. Diuretics are useful for after-treatment during convalescence.

NOTES ON REMEDIES.

Aconitum has been used to reduce the arterial pressure. It is highly praised by PHILLIPS.

Benzoicum Acidum, as a diuretic, is valued as a prophylactic and to hasten convalescence.

Chloral acts as an anæsthetic, is claimed to be similar to chloroform in its effects, to allay irritation of nerve centres, and to have a decided effect in controlling convulsions from whatever cause. It thus relieves the physician of the difficulty of deciding whether the cause be plethora or anæmia, whether to bleed or not. But, like bleeding, it is accused of producing anæmia. It may be conveniently given by the rectum in an enema holding in solution gr. xxx.-lx. Dr. DELAUNY, in a prize thesis, 1879, says that statistics show that puerperal convulsions treated by revulsives and antispasmodics show 50 per cent. of mortality, by blood-letting 24 per cent., and by chloral 13 per cent.

Chloroform is acknowledged by all authorities to be of the greatest value either with or without venesection. For particulars as to its administration, see anæsthetics.

Jaborandi and *Pilocarpin* have both been advocated for their diaphoretic effects, by MASSMANN, TEHLING, and others, (*Centralblatt für Gyn.*, 1878.) The *modus operandi* is attempted to be explained on the TRAUBE-ROSENSTEIN theory of the convulsions. It is argued that the salivation and perspiration induced by the jaborandi or its alkaloid, relieve the excessive vascular tension. Two drachms of the fluid extract of jaborandi may be thrown into the rectum.

Opium and *Morphia*. These are invaluable narcotics in this condition. They are best administered, opium by the rectum, morphia hypodermically. In sthenic cases, they should promptly follow venesection. In the *Am. Jour. of Obstet.*, July, 1880, Dr. C. C. P. CLARK very strongly advocates large doses of opiates. He avers they will prevent convulsions as surely as quinine will break up intermittent fever, and its effect is no less absolute even after convulsions have actually set in. One to three grains of opium should be given daily for the premonitory symptoms. When a convulsion has actually taken place, a grain and a half of morphia should be given hypodermically at once: if a paroxysm occurs at any time after two hours, this dose should be repeated; if the patient is in labor, she should have another dose after eight hours in any event. These doses are perfectly safe, for the disease

involves a remarkable tolerance of the drug. Evacuant treatment is allowable, and perhaps useful, but opium should be the main reliance. When properly used, he has never seen it fail to ward off threatened eclampsia; and he has never known a patient to die of the disease when the drug had been given in season, in sufficient quantity, and in the proper manner. Others assert that the opium treatment gives a frightful mortality. (*Half-Yearly Compend.*, July, 1880, p. 174.)

Potassii Bromidum is excellent as a prophylactic, gr. x. three to six times daily. In the attack, it may be advantageously administered between the seizures combined with chloral, of each, ʒss.

Sodii Bromidum acts similarly to the potassium salt, and may be used in its place.

Veratrum Viride has been much discussed as an arterial sedative. Some practitioners claim that it entirely does away with the need of the lancet. It may be given in hypodermic injection of gtt. v.-x. of the fluid extract; or by the mouth, in doses of gtt. v.-xxx., repeated as required. If the pulse is full and above 80°, give the doses fearlessly. (*Trans. Am. Med. Assoc.*, 1876, p. 240.) An ounce has been administered in twenty-four hours with success. Others fear the depressing character of this remedy, and do not favor it.

GENERAL MEASURES.

Cold, in the form of ice to the head, spinal ice-bags, etc., is valuable in states of coma.

Diaphoresis, in order to produce a derivative effect and relieve the kidneys, has been attempted, both by means of drugs, as pilocarpin, and by enveloping the body in wet sheets wrung out in quite hot water, as recommended by JACQUET. This can only be relied upon in mild cases, and rather as a prophylactic.

Purgatives diminish arterial tension, draw congestion from the renal regions, and are a rational mode of treatment. A full dose of calomel and jalap may be given if the patient is able to swallow; otherwise a drop of croton oil may be applied to the back of the tongue. In both cases, an enema of castor oil and oil of turpentine, one tablespoonful of each in chamomile tea, should be thrown up the rectum. (SPIEGELBERG.)

Transfusion has been suggested by some writers, to follow venesection. Its value is undetermined.

Venesection is, in sthenic cases of true eclampsia, the most valuable of all remedial measures. It is not out of place, even in chloranæmic cases.

PUERPERAL MANIA.

• PROF. W. S. PLAYFAIR, M. D., OF LONDON.

Maintain the strength of the patient, calm the excitement, rest the disturbed brain. Over-active measures, as bleeding, blistering the shaven scalp, and the like, are distinctly contra-indicated.

Abundance of nourishment comes next. Give solid food principally, reserving beef-tea and brandy later. Food must be given forcibly, if necessary.

Stimulants increase the excitement, and are only useful in melancholia.

Keep the bowels well cleansed.

Procure sleep; nothing is so valuable as chloral, alone or in combination with bromide of potassium; 15 to 30 grains at bed-time rarely fails to procure sleep; give this in an enema, if the patient will not swallow.

Opiates are apt to do more harm than good.

BLANDFORD, on this point, says he believes opium never does good, and may do great harm. This applies equally, whether by the mouth or hypodermically. Often, after an opium sleep, the patient quickly rouses, and all is worse than before. In melancholia, in moderate doses, it may be given with advantage.

The prolonged use of the warm bath, say at 90°, for half an hour, has acted well as a sedative. The wet pack is equally good, and is more readily applied in refractory cases.

PROF. FORDYCE BARKER, M. D., NEW YORK.

Bleeding is useless, even injurious, as are vascular sedatives, except where there is also a latent local inflammation. Laxatives and emetics should never be given, except when positively required.

Insomnia, a striking feature, would suggest opium, but it will not, in any dose, cut short an attack, but may be of service where there is latent pelvic peritonitis.

Allay brain excitement by restoring exhausted nerve power; improve the nutrition of the brain by easily assimilated food. Tonics are of great service, as tinct. of chloride of iron, chlorate of potassium, and the sulphate of berberina. The latter is preferable to quinine, as it has much less tendency to induce cerebral congestion.

Induce sleep. Neither opium nor bromide of potassium will, as a

general rule, do this. Chloroform also, has disappointed nearly all. Chloral is of immense value; it does not interfere with any of the organic functions, is not followed by any unpleasant secondary effects like opium, and never fails to produce sleep. This is prolonged for hours, and if interrupted, the patient falls asleep again without a renewal. It is best given in doses of 15 or 20 grains well diluted, and repeated every two hours till the effect is produced.

Combat all complications. Give laxatives for constipation, diuretics for deficient renal secretion. If cerebral erethism arise, shown by the flushed face and red eyes, give bromide of potassium, 20 to 30 grains every six hours; but at night, for sleep, suspend this and give chloral. Watch for local inflammations, and employ appropriate remedies.

In puerperal mania, accompanied with high fever, restlessness, head symptoms and scanty secretion of milk, *aconite* acts speedily and markedly if given soon after the chill. (PHILLIPS.)

When the delirium is wild and furious, but intermittent, with scanty secretion of milk, etc., *stramonium* is useful. The nervous system is relieved, the flow of milk renewed, and sleep restored. From a quarter to a half grain of the extract in 10 to 20 minims of the tincture may be given every three or four hours until relief is obtained. The lochia, etc., should be watched, and the patient's powers sustained by nutrition and stimulation. (PHILLIPS.)

In puerperal hypochondriasis, Sir JAS. Y. SIMPSON, after failure with many remedies, used tincture of *cimicifuga*, fifty drops a day. In eight or ten days, the change for the better was marvelous, and the patient was completely restored to her former health and spirits.

Prof. BARTHOLOW also speaks of its value.

DR. A. J. C. SKENE, N. Y.

In an article on the treatment of diseases of the reproductive organs among insane women, (*Archives of Medicine*, Feb., 1880,) this writer observes that it is based upon the general principles which guide us in ordinary practice. There are, however, circumstances peculiar to this class of patients which must, of necessity, modify our treatment.

In the management of cervical endometritis, it is necessary to use means that do not require frequent repetition. On that account the hot water douche, (a most valuable remedy,) cannot be used, because these patients will not permit the nurse to treat them, nor will they

use it themselves, except in rare cases. There is the same objection to the use of the cotton and glycerine tampon, which requires to be renewed every day. In such cases Dr. S. has used with advantage an application of equal parts of *tinct. iodine* and *carbolic acid* once a week. This is sedative, and also changes the abnormal action of the mucous membrane, causing a diminution of the leucorrhœal discharge, the erosion of the surface disappearing, not by being replaced by cicatricial tissue, but by the restoration of normal epithelium. When improvement begins to appear it is well to lessen the proportional quantity of the acid.

Vaginitis is also a difficult disease to treat among insane women, owing to the same objections to the vaginal douche. Little progress can be made in the management of this affection without thorough cleanliness, and that is difficult to obtain among insane patients. In fact, vaginitis and vulvitis occur oftener in this class of patients than among those of sound mind, owing, apparently, to want of care in keeping the parts clean.

The treatment adopted in these cases consisted in first cleansing the membrane thoroughly with a sponge, and then applying a mild solution of nitrate of silver, or sulphate of zinc with fluid ext. of *hydrastis canadensis* and water, and then introducing a tampon of marine lint. This tampon is changed for a new one every two or three days, until the inflammation subsides. This is sufficient to cure most cases of vaginitis without any other treatment. It separates the inflamed surfaces, and by absorbing the secretions, keeps the parts perfectly clean. The tar which it contains, is one of the most useful remedies in inflammations of mucous membranes, and, besides, fulfills a modern demand in surgery in being antiseptic. This method of treating vaginitis has been tried in general practice, and answers well, but it is among the insane where its value is most marked.

Endometritis polyposa, or *fungosa*, with the menorrhagia which is caused thereby, is quite a common affection among the insane. To meet the indications and the circumstances which the accompanying insanity gives rise to, he has adopted, with satisfactory results, the following method of treatment:

Having made a positive diagnosis, a small curette or scoop, having a flexible stem, is carried into the cavity of the uterus, and the whole of the fungous material broken down and removed. This simple operation is often followed by complete recovery. Some-

times the polypoid growth returns, and a repetition of the operation is necessary. In very few cases it has returned again and again, but has finally yielded to the use of *bichloride of mercury*, given in the usual doses, and the application of tincture iodine and carbolic acid after the use of the curette. There is nothing new in this method of treating the disease in question, except in omitting dilatation of the cervix by tents as a preliminary. This is entirely unnecessary, and should be avoided, because it is painful and dangerous, while the use of the blunt scoop is less likely to give after-trouble than any other form of intra-uterine treatment. The methods of treating this affection given in the books, are first to dilate, use the curette, and finally use some caustic or alterative application to the whole endometrium. This requires that the patient should be confined to bed several days, care being taken to prevent the development of inflammation; and with all there is danger. Such practice is impossible among the insane.

For *laceration of the cervix uteri*, the success of the operation depends to some extent upon the details of after-treatment, such as rest in bed and cleanliness. That is difficult to obtain among insane women, but in lieu of that he has employed a method of operating which gives fair results, even when the patient goes around during the healing process, to wit, the use of silk sutures and the lint tampon in place of the douche.

The advantage is that the sutures cannot wound the vagina like the ends of a silver-wire suture, and the tampon supports the uterus and guards against putting a strain upon the sutures when the patient moves or sits up. This method is well adapted to practice among the insane. A question may be raised as to the propriety of leaving a silk suture in the cervix during the time requisite for healing. The constant heat and moisture to which the suture is exposed, certainly favors decomposition of the silk, and if that should occur the suture would cause suppuration. No such results need be feared when the silk is properly prepared by immersing it for several hours in a composition of melted wax, salicylic and carbolic acids.

The *pelvic pain* or neuralgia, which arises from cicatrices of the cervix and vagina, is often very annoying, and calls for treatment. Marked relief follows after dividing the bands of cicatricial tissue.

Displacement of the uterus, *i. e.*, prolapsus and versions, can be treated with good results, excepting when there is anatomical or

functional imperfection of the perinæum. The displaced uterus can be readily restored and a pessary adjusted while the patient is anæsthetized. It is necessary to frequently examine such cases while wearing pessaries, because they may suffer without complaining.

The most important difficulty is encountered in the management of displacements among those having imperfect perinæi. Pessaries or supporters held in place by being fastened to the body cannot be used, and on that account we are limited to intra-vaginal pessaries, which require the presence of the perinæum. To restore a lacerated perinæum would be easy, but to secure the after-treatment necessary to a good result is often impossible.

Flexion of the uterus, in its various forms, gives rise to much suffering when the menstrual function continues, and dysmenorrhœa is a common result. In quite a number of patients with flexion there is amenorrhœa, and in such, flexion alone is presumed to give no trouble. There is no reason for believing that a flexion unassociated with any other disease of the uterus would give rise to disturbance of the brain or nervous system in a patient who does not menstruate. But when the menses recur, and are painful, the probabilities are that the flexion is the cause of the dysmenorrhœa, and it should be relieved if possible. Knowing how difficult flexions are to cure when the circumstances are favorable, it need hardly be stated that the treatment of such deformities among the insane, is often very unsatisfactory. The most daring gynecologist would hesitate to use a stem pessary, or perform division of the cervix, in a patient who could not be well controlled during the after-treatment. In flexion of the cervix, division might be practiced in patients not too violent and uncontrollable. As a rule, however, the treatment in such cases is limited to subduing any excessive irritability of the uterus, and securing a sufficient size of the canal by dilatation or incision, if necessary, and in cases of forward flexion of the body, much might be gained by straightening the uterus and keeping it so by means of Thomas' ante-flexion pessary.

PUERPERAL FEVER (PUERPERAL SEPTICÆMIA. PUERPERAL PYÆMIA.)

HUGH MILLER, M. D., OF GLASGOW.

Excessive and Septic Lochial Discharge. This teacher, in a clinical lecture, reported in the *Edinburgh Medical Journal*, Nov., 1878, recommends the following prescription in cases in which there is an excessive discharge, accompanied by a relaxed condition of the uterus. He administers one-drachm doses of liquid extract of ergot, repeated every three or four hours, and

1453.	R.	Quiniae sulph.,	3 ^{ss}	
		Acidi hydrobromici,	3 ^{vj}	
		Aquæ,	3 ^{ij} .	M.
			ad	

Dose, teaspoonful in water three times a day.

By this method large doses of quinine may be given without causing headache.

In septic cases Dr. MILLER advises the employment of *sulphocarbolate of potassa*, in the form of powders, in doses of 10 to 15 grains internally three times a day. When the discharge is suspended, the treatment consists of turpentine stupes applied over the lower part of the abdomen, with the addition of warm moist cloths, or of sponges pressed out of hot water, and applied to the external parts. In special cases, which require an antiseptic plan of treatment, Dr. MILLER makes use of a solution of *thymol*, 1 part to 500 parts of water, or, better, three grains of thymol to an ounce of eau de cologne. This mixture, which has a pleasant and rather refreshing odor, is simply sprinkled over the napkins before they are used. In severe cases, with a putrid odor, a solution of *permanganate of potassa*, injected with Higginson's syringe, provided with a vaginal portion, is made use of; the injection of the fluid is continued till it returns unaltered in color. In all cases where the discharge is excessive, tincture of *arnica* is employed; the tincture is used in the proportion of one teaspoonful to a cupful of water; it acts as a mild astringent and disinfectant.

PROF. FORDYCE BARKER, M. D., NEW YORK.

This author has an exalted opinion of *veratrum viride* in this disease. He, however, recommends small doses, and the effects to be carefully watched. If the remedy produces symptoms of depres-

sion, these symptoms have been readily dissipated by brandy, whiskey, or carbonate of ammonium. The *veratrum viride* should not be discontinued too early, as its premature withdrawal may be attended with renewal of the symptoms. He usually commences by giving five drops every hour, and gradually increasing the dose, if there be not a perceptible impression upon the pulse after giving two or three doses. After the pulse is reduced, it is thus maintained by administering two, three or four drops every second hour.

It is also very important in this disease to allay pain, quiet nervous irritation, and secure sleep. These ends are best secured by opiates. He prefers Magendie's solution of morphia by the mouth, if the stomach is not irritable, but hypodermically, if there be nausea and vomiting.

The next indication is to reduce fever. Quinine, mineral acids, cold sponging, alcohol, and appropriate nutrition, are the antipyretics upon which the medical profession now relies. Of the mineral acids, our author prefers phosphoric acid. He believes that it allays *nervous* irritability and that it acts specifically as a tonic. He adds a teaspoonful of the dilute acid to a tumblerful of water, flavored with the syrup of orange peel. If the patient be disinclined to drink, he has sometimes substituted ten to fifteen drops of dilute sulphuric acid every two or three hours. The treatment of pyæmia must be governed to a great extent by the therapeutical indications of its associated diseases. Prof. B. regards quinine and alcohol as the two great remedies in the constitutional treatment of this disease. He prescribes 10 to 15 grains of quinine in the morning, and from 15 to 20 at night. If from idiosyncrasy, there is an intolerance of this agent, he combines it with from 10 to 15 grains of the bromide of potassium. This counteracts the unpleasant cerebral symptoms which sometimes occur. He has never seen quinine produce paralysis of the motor power of the heart. He thinks a free use of stimulants obviates this danger. These he pushes to the degree of tolerance. To procure rest, he advises an opiate at bed-time. The most nourishing and most easily digested food should be urged upon the patient, and skill should be used to make it tempting and palatable. If the urine become scanty, bloody and albuminous, he orders dry cups over the kidneys, the free use of diluent drinks, and the tincture of the chloride of iron. The latter is very useful in conjunction with the chlorate of potassium when there are very profuse discharges of pus from external abscesses. He esteems the following combination:

1454.	R.	Tinct. ferri chloridi,	f. $\frac{3}{4}$ ss	
		Aquæ,	f. $\frac{3}{4}$ iiss	
		Potassii chloratis,	$\frac{3}{4}$ ss	
		Syr. aurant cort.,		
		Glycerinæ,	āā f. $\frac{3}{4}$ ij.	M.

SIG.—Tablespoonful in a wineglassful of sugar and water four times a day.

PROF. W. S. PLAYFAIR, M. D., LONDON,

Regards the indications: to discover, if possible, the poison, in the hope of arresting further septic absorption; to keep the patient alive until the effect of the poison has worn off; and to treat any local complications that may arise. Antiseptic injections must be employed at least twice a day. He employs Higginson's syringe, with a long vaginal pipe attached. He prefers the alternate use of Condyl's fluid largely diluted, and the tincture of iodine. The washing should be thorough, and done by the physician himself. Food and stimulants to keep up the powers. Not more than one or two hours to elapse without nutriment of some kind. In moderate cases a tablespoonful of brandy or whiskey every four hours; but when the pulse is rapid and thready, there is low delirium, tympanites or sweating, indicating great exhaustion, give them in larger quantities and at shorter intervals. In severe cases, 8 to 12 ounces, or even more, may be given in twenty-four hours, with benefit. Never bleed.

Give medicines to lessen the force of the circulation, without exhausting, and to diminish the temperature. Tinct. of *aconite* is most valuable. Give a single drop every half-hour, increasing the interval according to the effect. Generally, after four or five doses, the pulse falls, and then a few doses every two hours will suffice. Watch it, and stop if the pulse becomes too weak, or intermits.

To reduce the temperature, give *quinine*, 10 to 20 grains, morning and evening. Mental disturbances and other unpleasant symptoms, may be lessened by the addition of 10 to 15 minims of hydrobromic acid to each dose. *Salicylic* acid, ten to twenty grains, or the *salicylate of soda* in the same dose, is a valuable antipyretic. It requires to be watched.

Warburg's tincture, the basis of which is quinine, has a powerful antipyretic effect.

Cold may be applied in suitable cases. The ice-cap is best; it comforts, relieves the throbbing headache, and the temperature usually falls. When the temperature reaches 105°, cold to the body may be used, but only as a temporary expedient.

Where there is much tympanites, *turpentine*, 15 to 20 minims, may be given in mucilage. It acts as a strong nervine stimulant.

The effect of purgatives is uncertain, and often exhausting.

RUNGE, of Dorpat, though rigidly insisting upon local medication in incipient puerperal sepsis, relies, after the appearance of constitutional symptoms, solely upon the employment of alcohol and lukewarm baths. Alcohol in puerperal fever is not only well tolerated, but reduces also the febrile temperature, is an energetic stimulant in cardiac weakness, and has the value of a food. Larger quantities are to be employed than those usually given. His favorite nutriment is cognac with the yolk of an egg (Stoke's mixture), in hourly doses of 1 to 2 teaspoonfuls. Lukewarm baths are indicated by failure of nutrition, incipient somnolence, delirium, and cardiac weakness, (small and quick pulse). Contra-indications are collapse, fresh metastases, and venous (femoral) thromboses. Cold affusions during the bath are also useful. One to two baths a day, lasting for five or ten minutes, are sufficient. Milk, eggs, broth, and meat in small quantities, ought to constitute the sole diet. Obstipation, even if peritonitis should set in, is to be treated by castor oil; violent abdominal pains by the ice-bag and opiates. *Volkmann's Samml. Klin. Vortr.*, No. 287.

JOSEPH HOLT, M. D., OF NEW ORLEANS.

In reviewing the subject, this writer says, (*New Orleans Medical Journal*, Sept., 1876,) that the physician's first duty is to guard every obstetric patient against septic contamination from without, by refraining from attending such cases if we have reason to believe that our hands or clothing are infected; by the liberal use of disinfectants about the apartment or premises, and even removing the patient if we suspect the sanitation of the locality.

We are to guard against auto-infection by cleanliness, by the free use of vaginal injections when there is even the slightest putridity of the lochia, by the immediate removal of any remnant of decomposing placenta or coagula, by the avoidance of anything likely to check the lochial discharge, as cold and dampness, and when it is checked, inviting it again by the repeated warm douche. As a disinfecting wash, he earnestly recommends the formula of Dr. I. L. CRAWCOUR, of New Orleans:

1455. R. Acidi carbolicī,
Tincturæ iodi compositæ,
Glycerinæ,

$\overline{\text{3}}$ j
f. $\overline{\text{3}}$ ss
f. $\overline{\text{3}}$ ijss. M.

SIG.—A tablespoonful to be stirred into a quart of tepid water, and injected high up in the vagina two or three times daily, as the case may require.

If infection has already occurred, we are to look to antiseptic remedies as offering the most reasonable hope of success. If puerperal fever is septicæmia, it is irrational to expect a positive controlling influence from opium or calomel, purgatives, emetics, venesection, cardiac sedatives, or any other remedy not having the quality of directly disinfecting the blood.

There is no doubt but that some of these drugs and expedients are extremely useful in the treatment of this disease, but as a mainstay, experience has taught that none of them are to be relied upon. Dr. HOLT has administered, with an apparent speedy amelioration of symptoms, the following formula:

1456. R.	Acidi carbolici,	gtt. xx	
	Sodii sulpho-carbolatis,	3 ss	
	Glycerinæ,	f. 3 j	
	Aquæ,	f. 3 v.	M.

SIG.—Tablespoonful every three hours.

The old remedies, approved by experience, are called for when specially indicated; as in many cases, keeping the bowels freely open by mercurial purgatives, the pill of calomel and compound extract of colocynth, subduing excessive heart-action with veratrum viride, blistering when the inflammation localizes itself, and attending to the state of the lochial discharge.

In cases where the local inflammation is attended by excruciating pain (of such common occurrence,) he has been able to control it perfectly by applying over the painful part, a fly-blister, removing the cuticle, and then laying on a plaster composed as follows:

1457. R	Ex. belladonnæ,		
	Ex. opii,	āā	3 j
	Adipis,		3 j.

For a plaster.

The effect of this plaster is so tranquilizing as to do away with the necessity of narcotics given internally. The physician must carefully watch its effect, and remove it for a while if much narcotism is induced, protecting the blistered surface in the meantime with an emollient poultice. The strength of it may be increased or diminished according to the effect, and it may be continued as long as there is abdominal tenderness.

W. H. PARISH, M. D., PHILADELPHIA,

In a paper read before the Philadelphia County Medical Society,

being a clinical study of the cases at the Philadelphia Hospital, concludes as follows:

Puerperal fever and puerperal septicæmia are dependent upon one and the same poison, and this poison originates in a great variety of forms of decomposing organic material. The source of the poison may be within the woman herself, or it may have its origin in sources external to her.

Puerperal fever or puerperal septicæmia may be conveyed from one puerperal patient to another.

If a lying-in patient is suffering with traumatic inflammation, she is thereby rendered more liable to internal infection.

The poison develops with great rapidity in a lying-in patient suffering with traumatic inflammation, and from her it may be transferred to other lying-in patients, and in them it may produce septicæmia or puerperal fever, though the original patient may herself have escaped infection.

In a patient suffering with auto-genetic infection, the symptoms vary greatly, according to the absence or presence and degree of traumatism, and according to the special mode of the internal infection.

The symptoms in patients suffering from external infection, are more uniform in their manifestations, as are also the pelvic and abdominal lesions.

The treatment of cases of internal infection, must vary greatly for the same reasons that the symptoms vary.

In cases of external infection, the treatment is more uniform, and should consist, as a rule, of local abstraction of blood by leeches (f. 5xvi.-xx.), of warm, moist applications, of warm, disinfecting vaginal or intra-uterine injections, of quinia in full doses, of morphia as a calmative, of a mild diuretic, of stimulants according to depression, allowing moderate constipation to follow the use of an enema, and of liquid and highly nutritious diet.

The prophylaxis is of, however, paramount importance, and should consist of measures which will prevent the formation of septic material within the woman, and that will prevent the conveyance of septic material to her person from external sources.

NOTES ON REMEDIES.

Aconitum. PHILLIPS is very positive as to the good effects of *aconite* in drop doses every hour or two, day and night. If employed as soon as indicated, it will be most beneficial.

Carbolicum Acidum is the most widely used of the antiseptic agents.

Digitalis has been employed by Dr. WINCKEL as an abortive of puerperal fever. It reduces temperature, and produces rest and sleep. (Ranking's *Abstract*, vol. xxxvi.) He uses the following formula for hypodermic injection :

1458. R.	Digitalini,	.001 gramme
	Alcoholis,	
	Aquæ,	āā ad 3 grammes.

In true septic fever it is useless, and AMANN warns against the large doses administered by some practitioners.

Eucalyptus. According to HERTZ the tincture of eucalyptus is next in efficiency to quinine, and should always be tried when the latter fails. The effect is prompt, and there are no unpleasant after-effects. Two or three teaspoonfuls of a tincture of the fresh leaves is the dose he recommends. OSTERLOH, of Dresden, has also testified to the value of this drug, especially where febrile symptoms appear without marked local disturbance.

Ferri Chloridi Tinctura. Dr. CHARLES BELL, in describing some cases of puerperal fever in the *Edinburgh Medical Journal*, July, 1880, says of its treatment: "I have found no remedy so effectual in purifying the system as the Edinburgh preparation of the tincture of the muriate of iron when given regularly in full doses frequently repeated. The great error in the employment of this medicine is the timidity shown in giving it in sufficient doses; in consequence its good effects have been questioned in diseases of zymotic character, such as erysipelas, diphtheria, and scarlet fever. It has remarkable effect in moderating the pulse and diminishing the secretion of pus. At the same time, I think it right to warn the practitioner against trusting to the new preparation of iron called the tinctura ferri perchloridi, which differs from the tincture ferri muriatis in its formation, its medicinal effects, and in its analysis." The dose he gives is 30 drops every two hours, well diluted.

Hydrargyrum. The mercurial treatment still has defenders in England, but is nearly obsolete elsewhere. Calomel in small doses is given until salivation is produced.

Opium and Morphia. Enormous doses of these preparations can be taken with advantage in puerperal fever. Dr. J. P. WHITE, of Buffalo, says he has given as much as one grain of morphia every hour for forty-eight consecutive hours, with success. Dr. E. H. TRENHOEME, of Montreal, gives from one grain to a grain and a third hourly, and has never lost a case. (*Trans. Internat. Med. Congress*, 1876.) When opium and its derivatives cause vomiting, they are contra-indicated or must be administered in combinations which will avoid this. AMANN

says that the following will not be followed by vomiting even in cases predisposed to it :

1459. R. Atropiæ,
Morphiæ sulphatis,
Aquæ destill.,

1 part
15 parts
q. s.

M.

For hypodermic injection.

Quinîa Murias. This salt is decidedly preferred by AMANN (*Klinik der Wochenbettkrankheiten*) on account of its being so much better borne by the stomach than the sulphate. He orders the quinine in one or two large doses, from gr. viij-xxiv., at a dose, and this twice daily for one or two days, and then allows two or three days to intervene. The patient should be informed that she will experience quininism, but that the state is temporary and harmless.

Quinîa Sulphas, especially in the form of "Warburg's tincture," has lately been asserted to be a very valuable remedy in puerperal septicæmia. Cases are given by Dr. A. BAIRD, Edinburgh. (*Med. Jour.*, August, 1879.) BARTHOLOW speaks of the undoubted good effects of the quinina in doses of gr. v.-xx., every four hours. Dr. R. PARK (*Glasgow Med. Jour.*, October, 1880,) has given as much as ʒj. at once, with no other effect than intensifying the sufferings of the patient.

Salicin, internally, has been used by DUNCAN and others, and is spoken of as a reliable antipyretic.

Salicylicum Acidum has been used both locally and internally.

Sodii Salicylas, as more agreeable than the acid, should be preferred for internal use.

GENERAL MEASURES.

Blisters are often of great service, especially in the later days of the fever, when DUNCAN recommends "a large flybister of the old-fashioned sort, so as to produce great irritation and a copious effusion of serum."

Leeches. Prof. DUNCAN observes that in milder cases where there is parametritis or perimetritis as many as a dozen leeches, applied above the groins, generally cause marked relief of pain and some improvement of the general condition.

Intra-Uterine Injections. These have been fully discussed on previous pages. There is no doubt they are most beneficial in many instances of this disease. Weak carbolic acid solutions appear to be the best. Salicylic acid produces a roughness of the mucous membrane, and permanganate of potash stains the linen. In introducing the catheter, great care should be taken not to wound the inflamed lining of the uterine cavity. It is well to close the genital fissure for a few seconds, so as to retain the injection longer.

Cold. An important measure is the application of cold. It may be employed as lukewarm, cool or cold baths, ice-bags, or cloths wet with cold water. These are to be chosen with reference to the height of the fever and the strength of the patient. In light cases, cold cloths or ice-bags to the head may be sufficient; in severer ones, the cloths should be applied to the abdomen or the whole body. The latter, however, is not convenient in parturients. Cool baths are very efficient, but by no means easy to carry out in private practice.

PELVIC CELLULITIS AND PERITONITIS (PUERPERAL PHLEBITIS AND METRITIS.)

T. G. THOMAS, M. D., NEW YORK,

Has tabulated the points of differential diagnosis between pelvic cellulitis and peritonitis as follows:

<i>Cellulitis.</i>	<i>Peritonitis.</i>
1. Tumor easily reached; generally felt in one broad ligament; may be felt above the pelvic brim.	Board-like feel to the vaginal roof. Tumor very high, only felt in the vaginal cul de sac; does not extend above the superior strait.
2. Marked tendency to suppuration.	Suppuration rare.
3. Abdominal tenderness in one iliac fossa.	Abdominal tenderness excessive above the brim.
4. Tumefaction laterally in the pelvis.	Tumefaction near or upon the median line.
5. Tendency to monthly relapse not marked.	Tendency to monthly relapse very marked.
6. Pain severe and steady.	Pain excessive, often paroxysmal.
7. Facies not much altered.	Very anxious.
8. Nausea and vomiting not excessive.	Nausea and vomiting often excessive.
9. Not accompanied by tympanites.	Always accompanied by tympanites.
10. Uterus fixed to a limited extent.	Uterus immovable on all sides.
11. Not necessarily displaced.	Always displaced.
12. Cause. Parturition, abortions, operations on the pelvic viscera.	Diseases of the ovaries, gonorrhœa, exposure during menstruation, fluid in the peritoneum.

PROF. WM. GOODELL, M. D., PHILADELPHIA,

In *Philadelphia Medical Times*, 1880, gives the following advice as to treatment:

The disease having been recognized, administer at once a full hypodermic dose of *morphia*, and from 10 to 20 grains of *quinia* by the mouth. These measures, taken promptly, will often stop the disease at once.

Failing to abort the attack, we must paint the abdomen with iodine and put on a poultice, covering it with oiled silk, or greased brown paper; it will then remain soft for twenty-four hours. The patient must have large doses of *quinia*. If the temperature be high, she should have 10 grains at a time, and from 30 to 40 grains in the course of the day. Large doses of *morphia* must also be given. If the woman be plethoric, the *morphia* may be given by the mouth, with neutral mixture and wine of *ipecacuanha*, or in some other fever mixture. In some cases, tonics are demanded. If the sickness last for more than a week, and the local tenderness increase, put on a blister promptly.

Later, muriate of ammonia is an excellent remedy in this disease; so, too, is aconite. Dr. GOODELL usually prescribes the following:

1460. R.	Mist. glycyrrhizæ comp.,	f. ℥vj	
	Ammonizæ muriatis,	3ij	
	Hydrarg. chloridi corrosivi,	gr. j	
	Tinct. aconiti radicis,	gtt. xxiv.	M.
A tablespoonful in water every six hours.			

As concerns routine treatment, the patient should take plenty of milk, whiskey, beef-tea, and large doses daily of dialyzed iron.

PROF. W. S. PLAYFAIR, M. D., LONDON.

The important points are relief of pain and absolute rest. If seen at an early stage, blood taken locally by leeches to the groin or to the hemorrhoidal veins, may give relief. Leeches to the uterus are likely to cause harm by the irritation of passing the speculum. Opiates in large doses, or by suppositories, or subcutaneously, are the best when the pain is at all severe. When paroxysmal, use suppositories immediately the pain threatens. When there is much pyrexia, give large doses of quinine. Keep the bowels free; nothing answers so well as castor oil, one-half a teaspoonful every morning. Warmth and moisture to the abdomen give great relief in the form of linseed-meal poultices; or if these are too heavy, use spongio-piline soaked in boiling water. Poultices may be sprinkled with laudanum or belladonna liniment. Absolute rest in the recumbent position must be enforced for some time after the symptoms

abate. Then absorption may be favored by the long-continued daily use of tincture of iodine until the skin peels, or by frequently-repeated blisters. This is better than keeping an open sore by irritants. When an abscess has formed and points in the groin, make a free incision, and employ antiseptics. Wait till the pus is near the surface. In these operations, the aspirator is a valuable instrument.

Diet should be abundant, simple and nutritious. Make up for the drain caused by suppuration. Tonics, iron, quinine, and cod-liver oil, will be useful.

PUERPERAL PERITONITIS TREATED BY HYSTERECTOMY.

The *Archives of Gynecology, Obstetrics and Pediatrics*, March, 1892, contains an abstract of a case reported by Dr. A. LAPHORN SMITH (*American Journal of Obstetrics*), in which a partially retained placenta gave rise to peritonitis, preceded by a chill and temperature of 104° on the third day. The symptoms were urgent, and palliative treatment gave only temporary relief. On the fifth day abdominal section was performed and the uterus removed, the stump being drawn into the lower angle of the abdominal wound and covered with boracic acid. No drainage was employed; the stump turned back on the twelfth day: the temperature fell from 105° before the operation to normal on the fourth day, and the convalescence was uneventful. The following conclusions are drawn:

In confinement cases the temperature should be taken daily, and if there be any fever, vaginal douches of permanganate solution should be given; if the temperature does not speedily fall after such measure, the douche should be made intra-uterine.

If there is no improvement in a day, curette, irrigate and apply tincture of iodine to the cavity of uterus.

If these measures fail and peritonitis develops, perform an exploratory incision, and if there is no other evident source of infection, remove the uterus.

PROF. FORDYCE BARKER, M. D., NEW YORK.

In this disease, this author directs absolute quiet in bed, and regards the danger of relapse as imminent if the patient rises or moves much. If there be much pain in micturition, and the bladder be not thus entirely emptied, a catheter should be used. He believes that the bowels should be kept free from fecal evacuations

by teaspoonful to tablespoonful doses of the compound magnesia powder, or the compound licorice powder, of the German Pharmacopœia. If the pain be very acute in the commencement of the attack he usually overwhelms it by one hypodermic injection of morphia, and relies afterwards upon opium suppositories. The lower portion of the abdomen should be kept covered by hot poultices of ground flaxseed, over which should be placed oiled silk, so that the poultice may retain its warmth for some hours. After the acute stage has passed away, cotton-wool, wet with laudanum, and also covered with oiled silk, may be substituted for the poultices. For some years he has discarded cups, leeches, and local depletion.

In the cases which assume a subacute or chronic form, he has witnessed much benefit from injections into the vagina of water as hot as can be comfortably tolerated. In the employment of these injections, the patient should lie across the bed, with the hips well over its edge, and the feet upon two chairs. An india-rubber sheet should be placed well under her, between her hips and her clothing, not only to prevent the latter from getting wet, but also to conduct the water, as it flows back from the vagina, down to a vessel which is placed on the floor. Then by the use of a Davidson syringe, two or three gallons of hot water may be injected into the vagina by the nurse. A still more easy method is to have a pail, with a stop-cock at the bottom, which connects with a long India-rubber tube, having a vaginal pipe at the end. This pail is placed on an elevation of a few inches above the patient, and the water is allowed to run in and out of the vagina. Not only do the patients generally derive great comfort from this warm poulticing, but if the physician immediately after makes a vaginal examination, he will need no argument to convince him what a powerful agent this is in modifying tissue.

He employs quinine at an early period of this disease, giving it in as full doses as the patient can bear without inconvenience. If symptoms of suppuration, cachexia and hectic fever, come on, he relies on quinine and alcohol pushed to the point of tolerance, as internal remedies, and on surgical means for giving exit to the purulent collection.

So soon as the least fluctuation can be detected in any part of the pelvic capacity, Prof. B. directs that it be aspirated. He considers this a safe procedure—that it gives immediate relief to pain, that it shortens the duration of the disease, and is a prophylactic measure against disorganization of adjacent tissues.

Puerperal Metritis. If he finds the patient with pain in the hypogastrum, and the uterus larger than it should be at the time of the puerperal period, and painful on pressure, the lochia diminished in a marked degree, or perhaps wholly arrested; or, on the other hand, a return or positive increase in the amount of blood lost in the discharge, with a quick pulse, and more or less fever, he at once gives the following powder, well mixed, in a wineglass of sugar and water:

1461. R.	Tully's powder,			
	Potass. bicarb.,	āā	gr. x	
	Hydrag. chloridi mitis,		gr. v.	M.

If the skin be very hot and dry, and the pulse very hard, he may substitute the following:

1462. R.	Pulv. potass. nitrat.,		gr. x	
	Pulv. gum camphor,			
	Hydrag. chloridi mitis,	āā	gr. v	
	Pulv. Jacobi veri,		gr. iij	
	Pulv. opii,		gr. j	
	Vel. morphæ sulph.,		gr. ½.	M.

He anticipates the following effect from these powders: The pain will be relieved; nervous irritation allayed; sleep induced; fever subdued; diaphoresis produced; and eight or ten hours after, an easy, revulsive cathartic action will follow. If cathartic action do not follow in ten hours, he orders a saline cathartic.

He also directs that turpentine stupes be applied over the uterus and kept on until the patient insists on their removal, when cotton batting should be laid over the uterus, and this should be covered with oiled silk. If the patient complains of severe pain or burning from the turpentine, the cotton may be wet with laudanum. If the disease be of a sthenic type, he has derived great benefit from the application of six or eight wet cups over the uterus, but repudiates the use of leeches as very objectionable. If, after two or three days, there be not evident decrease in the uterine tumor, he applies a blister over the uterus. In cases in which the uterus does not undergo the usual involution, while the lochial discharge is profuse and sanguineous, he has derived advantage from the following:

1463. R.	Ext. ergot. fld.,			
	Tinct. nucis vomicæ,			
	Tinct. ferri chloridi,	āā	f. ʒ ss	
	Glycerinæ,			
	Syrup aurant. cort.,	āā	f. ʒ j.	M.

SIG.—Teaspoonful in a wineglassful of sugar and water every fourth hour. This usually reduces the size of the uterus, and diminishes the hemorrhagic lochia within twenty-four hours.

Our author directs that we begin treatment by giving ten drops of Magendie's solution every hour, and gradually increasing the doses if the effects sought, be not manifested. If the drops be rejected by the stomach, administer morphia hypodermically until the stomach will tolerate it. In some cases the tolerance of opium is remarkable. One case took 106 grains of opium and its equivalent in morphia during the first twenty-six hours, and in the second twenty-four hours 472 grains of opium.

Prof. B. places also a high estimate on veratrum viride in allaying vascular excitement. In conjunction with morphia, it reduces the number of pulsations without reducing the strength or increasing the degree of vital depression.

For the pain in the abdomen and the tympanites, he applies the oil of turpentine on two thicknesses of flannel previously dipped in hot water and wrung out as dry as possible; this is to be left on as long as the patient can be induced to bear it. On taking off the flannel, the abdomen should be covered with a light layer of cotton-wool, at least an inch or two in thickness and wet with laudanum. The turpentine stupes should be re-applied once or twice a day, if the abdomen show a tendency to again become distended and painful, and the cotton batting with the laudanum should be re applied every few hours. In cases in which the symptoms of peritonitis have in a great measure subsided by apparent localization and induration, almost forming a circumscribed tumor, one author has witnessed much benefit follow the application of a blister. He directs that it be applied in the morning, so that it can be well watched, and that it be taken off and a warm poultice applied as soon as vesication has fairly commenced. In this way, the blister is well filled with serous exudation, there is very little pain or soreness, and all danger of strangury is averted.

In all cases in which the peritonitis is a complication of puerperal fever, he has found quinine an efficient remedy, especially in cases in which the chills are recurrent, or when there are symptoms indicating a tendency to purulent exudation. He prefers giving it in one or two impressive doses during the day to the small and frequently repeated doses—that is, give about 5 to 10 grains in the morning and from 10 to 20 in the evening. There is a decided tolerance to quinine in this disease. He also values alcohol in these cases. It renews the nervous forces, which are generally in a state of extreme prostration, probably by the cerebral hyperæmia induced

by the alcohol. In this, as in other diseases with great depression, patients are able to bear four, five, or even ten times the quantity that could be taken in health, without the least approach to intoxication. It diminishes waste, and thus tends to cause a diseased structure, in which vital changes are abnormally active, to return to its normal and much less active condition. With the whiskey or brandy he combines *veratrum viride* if there be considerable vascular excitement. This combination often reduces the pulse when either of these agents individually fails.

He also recommends the following vaginal injection:

1465. R. Glycerinæ,
Acid. carbolic. glacial, āā f. $\frac{2}{3}$ j
Aquæ puræ, f. $\frac{2}{3}$ vij. M.

SIG.—A tablespoonful added to half a pint of warm water, and carefully injected into the vagina twice a day. If the lochia be very abundant and fetid, the amount of carbolic acid may be doubled or even quadrupled.

The food should consist of beef-tea, panada, caudle, milk, and lime-water.

Our author has no confidence in the aplastic properties of mercury; yet in cases in which there is vomiting of bilious matter, he gives 10 grains of calomel well rubbed up with 20 grains of bicarbonate of sodium.

Although generally averse to venesection in this disease, he believes it is strongly indicated in some of the more sthenic cases, and employed with good results.

Stimulants should be given as soon as feebleness of the pulse, clamminess of the surface, profuse perspirations, or cold extremities, are noticed. Stimulants decrease the frequency and increase the force of the pulse.

Another important point, is nutrition. Food in a liquid form should be taken as freely as it can be digested and assimilated. Milk, eggs, gruels, beef-tea, mutton broth, chicken soup, given every two or three hours, are useful.

Purgatives, as a rule, are not desirable. Sometimes, however, when the tongue has a thick pasty coat, and there is a great deal of bilious vomiting, he gives a powder composed of from 5 to 10 grains of calomel, and 20 grains of the bicarbonate of sodium.

Puerperal Endometritis. E. VON BRAUN-FERNWALD, (*Archiv für Gynäkologie*, Berlin,) states that in 7600 births there were 101 cases of sapraemic endometritis treated by the curette. Of this number, 5 of the women died—a mortality of 4.96 per cent. Hemorrhage

following encochleation was rare; it occurred but once. After the scraping, the uterus was washed out with a 1 to-100 thymol solution, pressure being made by the hand from above, to promote expulsion of the fluid, and contract the uterus. A finger-thick pencil of iodoform, dipped into tincture of iodine, was then carried to the fundus uteri; all abrasions were treated with tincture of iodine, and the cervix and vagina were packed with iodoform gauze. The patient was then put to bed, given plenty of cognac, and an ice-bag was placed upon the abdomen. The tampon was removed in twenty-four hours, and the vagina douched daily with thymol solution. The curettement was done without an anæsthetic, as it is not particularly painful. As indications for encochleation, BRAUN mentions (*a*) fever during the early days of child-bed; (*b*) imperfect involution of the puerperal uterus; (*c*) abnormal lochia, discolored, bad-smelling secretion, often containing shreds of tissue.

NOTES ON REMEDIES.

Ammonii Murias is believed by many to act powerfully as a sorbefacient.

Hydrargyrum, either by the mouth or by inunction, is generally employed.

Iodum. This remedy is highly useful, externally applied to the abdomen.

Morphia, in full doses, and combined with quinia, is regarded by many practitioners as the best means of treatment.

BARTHOLOW says that the hypodermic injection of morphia will sometimes jugulate peritonitis, if given at the outset. If the period for such a favorable result has passed, the course and duration can be greatly modified by opium judiciously used. The quantity will be determined by the effect; the pain should be relieved, the pupils somewhat contracted.

Potassii Iodidum, is very useful to aid in the absorption of effusions.

Quinia must be given in large doses, and continued.

Terebinthina Oleum, in the form of stupes, during the acute stage, is recommended by BARTHOLOW and others.

Veratrum Viride, either alone or combined with morphia, to allay vascular excitement.

OTHER MEASURES.

Blisters favor absorption, and should be frequently repeated.

Cold, in peritonitis, is recommended in the form of the ice-bag by WINCKEL and BARTHOLOW. The latter says when the inflammation is recent, the abdomen may be covered with an ice-bag. It is proper to interpose a napkin between the skin and the bag.

Injections of hot water are highly lauded, especially by Prof. BARKER. They act like local poultices, and certainly are capable of great good.

Vaginal injections of carbolic acid, permanganate of potassa, and chlorinated sodium, are also extremely valuable as disinfectants and antiseptics.

Leeches applied to the groin or to the hemorrhoidal veins may be employed. Never to the uterus. BARKER discards them entirely.

Poultices are very comforting because of their warmth and moisture. These may be greatly aided by the addition of laudanum, belladonna, etc.

Rest. This must be absolute, and not departed from until all danger of a relapse has disappeared.

Section, Abdominal. Mr. LAWSON TAIT advocates the principle of opening and draining the various conditions of suppuration classed as "pelvic abscess." He points out, and quotes Dr. WEST in support, that in very many of these cases the abscess opens into the rectum or other part of the intestine, the bladder, or round amongst the muscles of the anterior abdominal wall. When such openings are established either death occurs or recovery is extremely protracted. Even when the abscess opens into the vagina or can be tapped from that canal, the recovery is frequently prolonged to an extent not commensurate with the size of the abscess. He opens from above, carefully stitching the lips of the opening to the abdominal wall. He has reported six cases where the patients were restored to health in thirty days. He concludes that it is neither a difficult nor a dangerous operation.

PHLEGMASIA DOLENS.

DR. JOSEPH AMANN, OF MUNICH.

The *prophylaxis* in this disease is very important. If signs of fever and pain in the limb appear, the patient should remain in bed, receive no visits, and observe a strict diet. Every precaution should be taken to remove all causes of excitement or irritation, moral or physical.

An important point is the position of the patient; she should lie so that the leg of the affected limb is more elevated than its thigh; for this purpose the leg should be laid on a soft elastic cushion, the knee being bent. The bowels should be moved by a moderate laxative. Venesection, formerly employed, is now out of date. At most, a few leeches may be applied near the painful point, in order to reduce the hyperæmia.

Of local applications, the most efficient are—cloths wrung out in lead-water, or ice-water; and, later, inunction with an ointment composed of equal parts of mercurial ointment and lard. Of the latter, a piece the size of a bean may be rubbed into the thigh and groin twice daily, until a mercurial impression on the gums is noticed, after which frictions with camphorated oil and alcohol, may be painted with tincture of iodine, and the limb bandaged.

The patient should keep her bed for some days after all fever has disappeared, as a part of the thrombus may be loosed by active motion.

In that form of the disease, where there is subcutaneous inflammation of the limb without thrombosis in the veins, the same precautions should be observed, in putting the patient to bed, and the limb similarly rubbed with dilute mercurial ointment. But should speedy improvement not follow these measures, the physician should not delay to make free incisions in the skin, to give vent to the pus which has formed, and to lessen the tension and swelling. A rapid change for the better will follow this measure. Applications of cloths wrung out in warm chamomile tea, and washing the wound with weak carbolic acid lotion, (one per cent.,) will appropriately follow. Of course the general strength must be supported by wine, soups, milk, etc.

PROF. FORDYCE BARKER, M. D., NEW YORK.

The disease tends to a spontaneous recovery, and generally disappears without serious consequences. Hence any treatment which disturbs the system or the normal functions, is objectionable. The indications are:

1. To allay the irritation of the nervous system, which can best be done by full doses of opium where there is no idiosyncrasy to prevent its use.

2. To support the system by nutritious food, stimulants and tonics. Of the last-mentioned, quinine and iron hold the first place.

Only in cases where special indications exist, should catharsis be induced, or cups be applied over the kidneys. In nearly all cases there is no occasion whatever for these.

After the first two or three days, the disease becomes mostly local. The patient should keep quiet, the limbs be elevated at an angle above the trunk by raising the lower part of the mattress, and where there is hyperæsthesia of the surface and pain in the deep-seated

nerves, much relief will be obtained by gently rubbing the surface with a liniment like the following:

1466. R. Linimenti saponis co.,
Tincturæ opii,
Tinct. aconiti radicis,
Extracti belladonnæ,

f. ℥vj
f. ℥iiss
f. ℥ss
℥ss.

M.

For a liniment.

The rubbing with this should be gentle and continued for fifteen or twenty minutes, and *always toward the trunk*. This may be repeated every six hours, after which the leg should be enveloped in cotton batting and covered with raw silk.

After the period of acute tension, the leg should be examined for localized phlegmon, and if any circumscribed collection of pus be discovered, it should be evacuated at once; otherwise the tonicity of the tissues will best be promoted by applying a roller bandage, beginning at the toes and carrying it up the whole length of the limb. This should be worn so long as there is any tendency to œdema of the foot and leg. The patient should not be permitted to walk until all evidence of local disease has disappeared.

PROF. W. S. PLAYFAIR, M. D., LONDON,

Agrees in the main with the treatment above recommended. For the relief of the pain, he has found one of the best measures to be wrapping the entire limb in linseed meal poultices, or in warm flannel stupes, the surface of which may be freely sprinkled with laudanum, chloroform, or belladonna liniment. Blisters, leeches, or any form of counter-irritation or abstraction of blood, he does not approve of. Internally, he thinks chlorate of potassium, with dilute hydrochloric acid, quinine, ammonia and iron, are the drugs most likely to prove of service. As an anodyne, generally nothing answers so well as the hypodermic injection of morphia.

At a later stage, support with a roller may be combined with gentle inunctions of weak iodine ointment. And shampooing or rough friction of the limb should be avoided, on account of the danger of producing embolism. The occasional use of the electric current is said to promote absorption.

PUERPERAL CONVALESCENCE.

PROF. FORDYCE BARKER, M. D., NEW YORK.

During this period, the chief indications are: First, the restoration of the pelvic organs to their normal condition, and the development of lactation. The accomplishment of the first in the multipara is usually attended with uterine contractions of an intermittent character. Our author thinks much can be accomplished by way of preventing their occurrence; that they are usually the result of coagula in the cavity of the uterus, which distend its walls and excite spasmodic contractions. The retention of these may be obviated by firm pressure over the fundus during the time the trunk of the fœtus is being expelled, and maintained until the placenta is delivered, and a permanent contraction of the uterus is secured. If the second stage is too rapid, or too prolonged, he gives a teaspoonful of the fluid extract of ergot, just as the delivery of the child is taking place. If the after-pains come on a few hours after the delivery, the first pressure should be renewed so as to expel coagula. It often gives relief. At a late period this must not be attempted, for fear that it may excite irritation and inflammation. He then relies on the following formula, known as Tully's powder:

1467. R.	Pulv. camphor,		
	Cretæ prep.,		
	Pulv. glychrrh.,	āā	Ḑj
	Morphiæ sulph.,		gr. j.
			M.

Dose.—The same as Dover's powder.

The severe after-pains sometimes occurring a day or two after labor, and excited by the pressure of flatus, must not be confounded with peritonitis. This diagnosis is easily made; while a slight touch causes pain, the pain entirely disappears upon continued pressure; it returns as soon as the pressure is removed. On the other hand, the pain due to peritonitis will be increased in ratio to the pressure made. After-pains due to flatus are most speedily relieved by turpentine enemata. Sometimes after-pains of a purely neuralgic character are encountered. They do not yield to opium in its fullest doses, but are relieved by quinine and chloroform liniment. He gives the quinine in doses from 5 to 10 grains, night and morning, and applies the liniment by saturating a piece of flannel of double thickness. The formula for the liniment is:

1468. R.	Chloroformi,	f. ℥ j	
	Liniment. saponis,	f. ℥ vj.	M.

RETARDED INVOLUTION.

If the uterus can be felt above the pubes a few days after parturition, our author prescribes the following :

1469. R. Ext. ergot. fluid.,
 Tinct. nucis vomicæ,
 Tinct. ferri chloridi,
 Tinct. cinnamom.,
 āā . f. ʒj. M.
- SIG.—Tablespoonful in a wineglassful of sugar and water four times a day.

LAXATIVES FOR PUERPERAL WOMEN.

PROF. FORDYCE BARKER, M. D., NEW YORK.

Our author opposes the indiscriminate use of castor oil, and very truthfully states that it often excites hemorrhoids. He highly recommends the following pills :

1470. R. Ext. colocynth co.,
 Ext. hyoscyami,
 Pulv. aloës soc.,
 Ext. nucis vomicæ,
 Podophyllin,
 Pulv. ipecacuanhæ,
 āā gr.j. M.
- Ft. pil. No. xii.

Two of these usually secure the desired evacuations of the bowels. One of these may be taken daily to keep the intestinal canal free from fæcal accumulations.

When there are flatulence and severe after-pains in consequence of constipation, he recommends the following :

1471. R. Ext. sennæ fluid.,
 Syrup. zingiberis,
 Tinct. jalapæ,
 Tinct. nucis vomicæ,
 āā f. ʒvj
 f. ʒss
 gtt. xl. M.
- SIG.—A tablespoonful in a wineglassful of sugar and water.

Dict. Our author very positively dissents from the formerly pursued plan of restricting the diet of the parturient woman to toast and tea. He very judiciously remarks that at this epoch of maternity, her wearied and exhausted system, with the additional taxation of lactation, requires food to meet the new demand for the nourishment of her offspring, and to restore her own strength and vigor. He further objects to the application of any arbitrary rules to all women, and enjoins the necessity of individualizing each case and adapting the diet to the various conditions of the patient. Some are very much benefited by an immediate restoration to their former

diet, while others need more restrictions, and the adaptation of the diet to the various pathological conditions evinced. It should, however, in all cases be as abundant as the digestive organs can digest, and the assimilative organs can appropriate without inconvenience, and of nutritious quality.

COCCYGODYNIA.

DR. H. HILDEBRANDT, OF KONIGSBERG.

This painful affection can be materially relieved or wholly cured in about one-half the cases, by medical and hygienic means; the remaining one-half have hope only from a surgical operation. When there is direct injury to the coccyx from confinement, horse-back exercise, or direct violence, less can be expected from medication.

In fresh cases, absolute rest on both sides, aperient medicines so as to secure loose stools, and local antiphlogistic measures are demanded. Some leeches should be applied either side of the coccyx, followed by an ice-bag. As soon as their bites are healed, tincture of iodine should be repeatedly painted over the part. Every sort of pressure on the bone must be sedulously avoided.

In old cases, the treatment may be begun in the same manner. The continued use of laxative mineral waters is beneficial; and to relieve the pain, recourse must be had to opium suppositories or subcutaneous injections of morphia, preferably the latter, as they do not so much tend to produce constipation. Counter-irritation by the actual or galvano-cautery has proved a benefit. Some cures have resulted from methodical massage; and as sometimes the suffering is strictly rheumatic in origin, colchicum and vapor-baths are appropriate in such instances.

PROF. EDWARD W. JENKS, M. D., OF CHICAGO,

In a lecture on this complaint, (printed in 1880), reviews its various causes and treatment.

Cases of coccygodynia, which arise from climatic causes, may be similar to cases of myalgia in any of the other muscular structures of the body, will be of rather an acute type, and yield to very much the same treatment as is employed in myalgia.

Chronic cases of a mild character will sometimes yield to epispastics or mild blistering, and anodynes administered either by the mouth or rectum.

Topical application of opium, or belladonna plaster, or chloral liniment, may often prove of service, but when the pain is severe, more potent remedies are required, such as the hypodermic injection of morphine, or atropine, or a combination of the two.

The hypodermic injection of *morphia* over the coccyx, may overcome the irritability and painfulness of the muscles, and possibly effect a cure. But if the case does not improve in a short time under some of these modes of treatment, we must have recourse to surgical art.

The mode of operating for amputation of the coccyx is as follows: Anæsthetize the patient, and place her upon her right side, that the index-finger of the left hand may be introduced into the rectum to press the coccyx backward, and as a guide during the progress of the operation.

Cutting down to the bone with the scalpel, it can be further separated from its attachments by means of scissors, or a knife, as we may choose, and selecting the location where amputation is to be made, we can then disarticulate at the joint, or follow the mode of SIMPSON, who used the bone-forceps and cut the bone without reference to joints.

By one of the procedures mentioned, namely, separation or amputation, we can confidently expect a cure; and as neither is attended with danger, we are also able to class these operations among the satisfactory ones of surgery.

CHAPTER III.

DISEASES OF THE MAMMARY GLAND AND OF LACTATION.

Mastitis; Inflammation of the Breasts—Mammary Tumors—Mammary Neuralgia (Mastodynia)—Galactorrhœa—Agalactia and Oligolactia—Diseases of the Nipple.

MASTITIS AND MAMMARY ABSCESS.

PROF. H. BILLROTH, OF VIENNA.*

The treatment of acute mastitis consists in putting the patient to bed, on low diet so long as there is fever, and in properly bandaging the breast. To relieve the pain and to prevent the formation of an abscess, warm poultices are required, and if lactation is interrupted, mercurial ointment or iodine ointment may be applied. Prof. B. disapproves of leeches and ice-bags. To check the secretion of milk he gives purgative or iodide of potash.

Massage of the breasts as practiced by many midwives is painful and may be injurious. The opening of the abscesses should always be done with a knife, and there is no advantage in delay. Very great advantages are here derived from the antiseptic treatment. The breast is first cleaned with soap, then washed with a weak solution of carbolic acid, and an incision one centimetre long, is to be made in the direction of the radius of the breast. The drainage tube is then inserted, the pus withdrawn, the breast again bathed with the carbolic acid lotion, and the breast compressed from all sides with antiseptic gauze.

If the antiseptic precautions are fully carried out, one will never see such cases as were common heretofore, in which the breasts were undermined for months with abscesses, and the woman suffered untold misery.

Even in old cases which have been allowed to open themselves

* *Handbuch der Frauenkrankheiten.*

or were incised without antiseptic precautions, we need no longer, as heretofore, have recourse to long incisions. The operation should be conducted as above, the opening dilated sufficiently to admit the finger and the point of an irrigator; the abscesses should then be washed out with a three per cent. solution of carbolic acid till it flows clear, the walls between the internal abscesses being broken down by the finger, and drains being placed in various openings. An antiseptic bandage is then applied. It is needless to say that anæsthetics are required.

As a consequence of mastitis, fistulæ in the breast are common and may continue many months. The usual treatment of these is to cauterize them with nitrate of silver and inject strong or weak solutions of carbolic acid or iodine. Some can also be remedied by drainage and compression.

PROF. W. S. PLAYFAIR, M. D., LONDON,

Urges that much may be done to prevent abscess by removing engorgement of the lacteal ducts when threatened, by gentle hand friction with warm oil. Combat feverishness by gentle salines, minute doses of *aconite*, and large doses of *quinine*, and relieve pain by opiates. Confine the patient to bed, and support the breast by a suspensory bandage. Warmth and moisture are best to relieve local pain, as hot fomentations, light linseed meal poultices, or bread and milk; and the breast may be smeared with extract of *belladonna* rubbed down with glycerine, or the belladonna liniment may be sprinkled over the poultices. Generally the pain produced by nursing is so great as to prevent the child being put to that side, and the tension must be relieved by poultices. When pus forms, remove it as soon as possible; nothing is to be gained by waiting till it nears the surface; delay leads to greater spread of the disease.

The antiseptic method of operation should always be employed, as thus, in place of weeks or months, the abscess will be closed in a few days. Mr. LISTER'S method is so perfect that no more can be desired. "A solution of one part of crystallized carbolic acid in four parts of linseed oil, having been prepared, a piece of rag from four to six inches square is dipped into the oily mixture, and laid upon the skin where the incision is to be made. The lower edge of the rag being then raised, while the upper edge is kept from slipping by an assistant, a common scalpel or bistoury dipped in the oil

is plunged into the cavity of the abscess and an opening about three-fourths of an inch in length is made, and the instant the knife is withdrawn, the rag is dropped upon the skin as an antiseptic curtain, beneath which the pus flows out into a vessel placed to receive it. The cavity of the abscess is firmly pressed, so as to force out all existing pus as nearly as may be, (the old fear of doing mischief by rough treatment of the pyogenic membrane being quite ill-founded); and if there be much oozing of blood, or if there be considerable thickness of parts between the abscess and the surface, a piece of lint dipped in the oil, is introduced into the incision to check bleeding and prevent primary adhesion, which is otherwise very apt to occur. The introduction of the lint is effected as rapidly as may be, and under the protection of the antiseptic rag. Thus the evacuation of the original contents is accomplished with perfect security against the introduction of living germs. This, however, would be of no avail unless an antiseptic dressing could be applied that would effectually prevent the decomposition of the stream of pus constantly flowing out beneath it. The following may be relied upon as trustworthy: About six teaspoonfuls of the above-mentioned oil are mixed with carbonate of lead to the consistence of a firm paste; it is, in fact, glazier's putty with the addition of a little carbolic acid. This is spread upon a piece of common tin-foil, about six inches square, so as to form a layer about a quarter of an inch thick. The tin-foil is placed upon the skin so that the middle of it corresponds to the position of the incision, the antiseptic rag being removed the instant before. The tin is fixed securely by adhesive plaster, the lowest edge being left free for the escape of the discharge into a folded towel placed over it, and secured by a bandage. The dressing is changed once in twenty-four hours, but if the abscess be large, it is prudent to see the patient twelve hours after it has been opened, when, if the towel be much stained with discharges, the dressing should be changed to avoid subjecting its antiseptic virtues to too severe a test. After this, one daily dressing is enough. The changing of the dressing must be done as follows: A second piece of tin-foil is spread with the putty, a rag is dipped in the oil and placed on the incision the moment the first tin is removed. This guards against the possibility of mischief occurring during the cleansing of the skin with a dry cloth, and pressing out any discharge which may exist in the cavity. If a plug of lint was introduced when the abscess was opened, it is removed under cover of the rag, which is

taken off the moment when the new tin is applied. The same process is continued daily until the sinus closes.⁵

In long-continued suppuration, methodical strapping of the breast with adhesive plaster, so as to afford steady support and compress the opposing surfaces, will be best. The sinus may be laid open, or injected with tincture of iodine or other stimulant. Support the system with food, stimulants, iron and quinine, as indicated.

Q. C. SMITH, M. D., CALIFORNIA.

1472. R. Olei lini,
Chloralis,

f. $\frac{3}{4}$ iv
 $\frac{3}{4}$ ss.

M.

Powder the chloral very fine, then mix it thoroughly with the oil. Apply, spread thickly, on a piece of soft woolen flannel, a little larger than necessary to cover the breast, with a central opening through which the nipple may protrude.

Apply as *warm* as can be borne, and keep warm whilst it remains applied, by warmed sacks of chamomile flowers or hops. The plaster should be renewed every four to six hours, until all pain, swelling and induration are relieved, (*Pacific Medical Journal*, May, 1878.)

In *acute mammitis*, a number of observers have reported striking success with the *poke root*:

1473. R. Extracti phytolacæ fluidi,
Twenty drops every three hours.

q. s.

Others have seen benefit from:

1474. R. Tincturæ belladonnæ,
Tincturæ digitalis,

āā f. $\frac{3}{4}$ j.

M.

Ten drops every three or four hours.

In *chronic mammitis*, Prof. HUNTER MCGUIRE, M. D., of Richmond, Va., condemns, (*Virginia Medical Monthly*, September, 1875,) the severe and needless practice of slitting up the sinuses, or of injecting them with stimulating fluids. Nearly every case can be cured by *proper bandaging* with adhesive plaster.

Cut the plaster into strips from four to six inches in length, and from a half to three-quarters of an inch in width, according to the size of the breast. After warming the plaster, apply one end of a strip to the circumference of the gland, near the axilla. Take another strip of the same length and width, and fasten its end to the

inner circumference of the breast, near the sternal bone. The ends of the two strips of plaster thus applied are held in place by an assistant, while the surgeon takes the free extremities of the strips, and drawing them toward each other, that is, drawing the breast from its circumference towards its centre, crosses the strips and fastens them. Two more strips are then applied just below, and lapping slightly the first two pieces. Continue in this way till the whole breast is covered (somewhat upon the same principle and manner that we use strips in an indolent sore on the leg), leaving the nipple and fistulous orifices uncovered. A piece of moistened lint is placed over the sinuses to catch the pus which escapes.

J. L. POWERS, M. D., IOWA.

This writer, in the *Medical Brief*, October, 1878, uses tobacco salve spread upon drilling, the size of the breast, with a hole in the centre for the nipple.

Internally, when inflammatory symptoms are marked :

1475. R.	Spt. ether. nit.,	f. $\frac{3}{4}$ ss	
	Tr. veratri virid.,	f. $\frac{3}{4}$ ss	
	Aquæ,	f. $\frac{3}{4}$ iij.	M.

Teaspoonful every hour or two, until it produces a sedative effect, and then less frequently.

With concentrated tincture of phytolacca, 15 to 20 drops, used persistently, he believes an abscess may be avoided.

NOTES ON REMEDIES.

Acetum. The application of a cloth wrung out in hot vinegar, which is then covered with a bowl moderately heated, is a popular means of aborting threatened inflammation of the breasts.

Aconitum, in minim doses of the tincture, is recommended by Dr. THOMPSON.

Ammonii Murias, as a resolvent local application, has been found very efficient.

Belladonna. In recent induration and inflammation of the breasts, remarkable effects are produced by belladonna in arresting the secretion of milk. Either as plaster or ointment, or also internally, its use should not be omitted.

Chloral is applied locally by Dr. Q. C. SMITH.

Chloroformum. Dr. S. W. GOULD, of Indiana, states in the *Med. and Surg. Reporter*, August 10th, 1878, that in acute mammitis he has for ten

years used the following without having occasion to lance a single breast :

1476. R. Chloroformi,
Glycerinæ, āā equal parts. M.
Shake thoroughly, apply quickly every hour, and cover with oiled silk.

Conium. In chronic engorgement or hyperplasia of the breasts, the prolonged use of conium internally has a decided influence in reducing the size.

Digitalis, in inflammatory states, may sometimes be advantageously combined with belladonna.

Iodi Tinctura, in the chronic forms of engorgement, is a valuable resolvent.

Plumbi Acetas. Dr. HUEBNER, of Dresden, recommends the constant application of lukewarm lead-water in compresses, followed, if required, by strapping of the breast and free incision.

Plumbi Iodidum. The discutient powers of this agent may be advantageously called into play in chronic engorgement of the mammary glands.

Stramonium. The fresh leaves of stramonium, made into a cataplasm and applied externally, have been found successful for discussing indurated lacteal glands in the breasts of nurses. (PHILLIPS.)

Tabacum, in the form of ointment, gr. xxx. to lard ℥j., has long been used in some parts of this country as a domestic application to inflamed and "caked" breasts.

GENERAL MEASURES.

Cold. Some writers are very positive in praise of cold applications in threatened inflammation of the mammary gland. Pounded ice is placed in a bag and laid directly upon the gland, to be renewed from time to time. The pain and swelling are said to abate promptly, "within an hour," and in a few days the inflammatory action has quite disappeared.

Compression is highly praised by most authorities. Dr. KOENING says that in *mammary lymphangitis* it is "infallible." The method which he employs (*London Med. Record*, April, 1877,) is the following: The diseased breast is covered with a layer of cotton-wool, and a bandage is applied which is known in minor surgery as the bandage of Mayor, or the triangular bonnet of the breast. The form of the bandage is a triangle, a yard in length from one extremity to the other, and fifty centimetres (nearly twenty inches) from the apex to the base. The base of the triangle is placed obliquely under the diseased breast, then one of its extremities is directed under the corresponding armpit, and the other over the opposite shoulder, and there united behind the shoulder-blade. The apex of the triangle

is then lifted in front of the diseased breast, it is carried over the corresponding shoulder, and firmly fixed behind.

Sometimes a linseed poultice is at the same time applied on the inflamed part.

The effects of treatment thus arranged are almost marvelous; the pain is immediately calmed, the inflammatory redness, and the œdema diminished at the end of a very short time.

Heat is more popular than cold as a means to effect resolution. Hot vinegar, lead-water, etc., warm poultices, heated bowls or plates, etc., are familiar applications, and often successful.

MAMMARY TUMORS.

DIAGNOSTIC POINTS.

The diagnosis of mammary tumors is confessedly difficult. We give from various surgical authorities, a few points to serve as diagnostic landmarks.

1. *The tumor presents itself as a small nodule in the breast.*

It may be merely a benign chronic mammary tumor, (adenoma), or the beginning of sarcoma, or scirrhus.

<i>Adenoma.</i>	<i>Sarcoma.</i>	<i>Scirrhus.</i>
Patient under thirty and single.	Patient any age.	Patient over thirty.
Tumor dense, but elastic and movable under the skin, and movable on the deeper part of the breast.	Tumor elastic and movable, but rapidly involving the surrounding tissues.	Tumor hard, and attached to the deeper part of the breast, though at first movable beneath the skin.
Pain, if present, of a neuralgic character, and worse at the menstrual period.	Pain not severe as a rule.	Pain severe, and of a sharp, lacerating character, and shooting down the arm.
Skin and lymphatics never involved.	Skin eventually involved, but no lymphatic enlargement.	Both skin and lymphatics involved early.
Grows very slowly, and varies in size.	Grows very rapidly, and apt to recur locally.	Grows rapidly, except in old people.
Nipple not retracted.	Nipple often exudes fluid.	Nipple often retracted.
No family history.	No family history.	Often hereditary.

Of these signs, the enlargement of the lymphatic glands of the axila and the neck is the most important point in the diagnosis of scirrhus.

Adenoma generally occurs in the breasts of young, healthy women, during their period of developmental perfection. Among married women, it often occurs among those who are suckling. It usually grows slowly, and as it enlarges, pushes the breast aside; it

never infiltrates it. It may grow to a great size, and stretch the skin even to the point of rupture; but the skin is never infiltrated, nor the tissues beneath. The tumor is encapsuled, and usually movable, and can be readily turned out. It is never associated with any secondary glandular enlargement.

2. *The tumor is elastic.*

Its contents should be drawn to the extent of a drop or two by a needle, and examined. If the fluid proves to be:

(a) *Pus*, the case is one of abscess.

(b) *Milky fluid*, it is galactoceles.

(c) *Clear fluid*, it is simply cyst.

(d) *Dark fluid*, it is compound cyst or sarcomatous cyst.

(e) *Clear fluid containing microscopic hooklets*, it is hydatid.

3. *The tumor is large, elastic, and rapidly growing.*

It may be:

Encephaloid Cancer.

No cyst present.

Lymphatic enlargement in the axilla and neck.

Skin infiltrated and thickened, often with small flattened nodules. Veins enlarged.

Benign Cystic Growth.

Cysts present.

No lymphatic enlargement.

Skin stretched and thin, so as eventually to give way. Veins about natural.

Hysterical Breast. This is rather a rare affection. Its invasion is often sudden, and the malady rapidly reaches its maximum of intensity. It is ushered in by a sense of uneasiness and formication, which is soon transformed into lancinating pains, becoming almost intolerable. In some cases the skin is changed, in others it becomes red, hot and swollen, and remains so till the end of the exacerbation. In the meanwhile, the gland enlarges to an enormous size. The ovaries are sometimes in sympathy. This condition lasts from one to three days. These troubles generally coincide with the period of menstruation or an hysterical attack.

The breast is subject to various other forms of tumors, some of which are dependent upon disorders of the secretion, and others on inflammation and its results. As the distinction between these is difficult, and of great importance in practice, we quote on the two following pages, a comprehensive table of the differential diagnostic symptoms, as arranged by Dr. D. S. ADAMS, in the *Transactions of the Medical Society of the State of New Hampshire*, 1879:

<i>Galactoceles.</i>	<i>Congestion with Milk.</i>	<i>Chronic Enc't Abscess.</i>	<i>Adenoma.</i>
<p>1. During the child-bearing period, and the result of pregnancy.</p> <p>2. No pain.</p> <p>3. System not disturbed.</p> <p>4. Breast considerably enlarged.</p> <p>5. Local circulation active in both breasts.</p> <p>6. Tumor quite a size, but if it has been in the breast long it is not as large as it was, on account of the more fluid portion being absorbed; but harder.</p> <p>7. May give an elastic feel, or fluctuation, or may be hard.</p> <p>8. Single.</p> <p>9. Nipple may or may not be connected with the tumor. If a simple dilation has taken place, it is connected; if a rupture, it may not be.</p> <p>10. Freely movable.</p> <p>11. Skin disturbed over it.</p> <p>12. Growth rapid; tumor fills every time the child nurses, then gradually subsides.</p> <p>13. Nipple never retracted.</p> <p>14. Surrounding glands never implicated.</p> <p>15. Superficial veins enlarged in both the breasts.</p> <p>16. Puncture. — Cheesy mass or cream.</p> <p>17. Microscope. — Milk or fat globules, with more or less epithelial cells undergoing fatty degeneration.</p>	<p>1. During the child-bearing period, and the result of pregnancy.</p> <p>2. Some dull pain sometimes; not common.</p> <p>3. System considerably disturbed.</p> <p>4. Breast very much enlarged.</p> <p>5. Local circulation active in both breasts.</p> <p>6. Tumor large and lobulated.</p> <p>7. Stony hard.</p> <p>8. Single.</p> <p>9. Nipple always connected with tumor.</p> <p>10. Not freely movable.</p> <p>11. Skin disturbed over it.</p> <p>12. Growth rapid to a certain size, then stationary.</p> <p>13. Nipple usually retracted or imbedded in the breast.</p> <p>14. Surrounding glands never implicated; but may be some swollen.</p> <p>15. Superficial veins enlarged in both breasts.</p> <p>16. Puncture. — Cheesy mass or cream.</p> <p>17. Microscope. — The same as in galactocoele.</p>	<p>1. During the child-bearing period usually, and most commonly the result of pregnancy.</p> <p>2. No pain.</p> <p>3. System not disturbed.</p> <p>4. Breast not much enlarged.</p> <p>5. Local circulation some increased in both breasts.</p> <p>6. Usually small and irregular in shape.</p> <p>7. May give an elastic feel, otherwise hard.</p> <p>8. Single.</p> <p>9. Nipple may or may not be connected with the tumor; usually is.</p> <p>10. Not freely movable.</p> <p>11. More or less œdema of the areola.</p> <p>12. Growth slow.</p> <p>13. Nipple usually flattened or retracted.</p> <p>14. Surrounding glands may be some swollen.</p> <p>15. Superficial veins may or may not be enlarged.</p> <p>16. Puncture. — Pus.</p> <p>17. Microscope. — Pus corpuscles.</p>	<p>1. Majority of cases under the age of 30.</p> <p>2. If painful, pain dull and most severe at catamenial period.</p> <p>3. System not much disturbed.</p> <p>4. Breast slightly enlarged.</p> <p>5. Local circulation some increased in the breast affected.</p> <p>6. Tumor small and nodulated.</p> <p>7. Moderately hard.</p> <p>8. May be single or multiple.</p> <p>9. Nipple always connected with tumor.</p> <p>10. Freely movable.</p> <p>11. Skin normal, unless the tumor has reached considerable size, when it becomes stretched over the tumor.</p> <p>12. Growth slow under the age of 30; after that, rapid.</p> <p>13. Nipple projects.</p> <p>14. Surrounding glands never implicated.</p> <p>15. Superficial veins usually enlarged.</p> <p>16. Puncture. — Solid.</p> <p>17. Microscope. — Epithelial cells if taken from the interior of the acini; otherwise, may get connective tissue.</p>

<i>Soft Carcinoma.</i>	<i>Hard Carcinoma.</i>	<i>Sarcoma.</i>	<i>Primary Cyst.</i>
1. Very rare under the age of 30.	1. Very rare under the age of 30.	1. Majority in patients over 30.	1. At any age above puberty. Majority under 30.
2. May or may not be painful. Is not usually painful till skin is implicated; then pain severe and cutting, running to the shoulder and down the arm.	2. Usually not painful till skin is implicated; then pain severe and cutting, or stabbing, running up to the shoulder and down the arm.	2. May or may not be painful.	2. Not painful usually.
3. System considerably disturbed.	3. System not much disturbed.	3. System usually disturbed some.	3. System not disturbed.
4. Breast some enlarged, and enlarges rapidly.	4. Breast normal at first.	4. Breast slightly enlarged.	4. Breast appears normal.
5. Local circulation some increased in the breast affected.	5. Local circulation apparently normal.	5. Local circulation slightly increased in breast affected.	5. Local circulation normal.
6. Tumor quite a size, irregular, and not well defined.	6. Tumor small and smooth or nodulated.	6. Tumor quite a size, and irregular.	6. Tumor small and may be nodulated.
7. Usually soft, with a doughy feel.	7. Tumor hard.	7. Tumor a little soft.	7. May give an elastic feel; otherwise, hard, and may be finely nodulated.
8. Single, but lobulated feel—may give the feel of a multiple tumor; but you cannot roll one on the other.	8. Single.	8. Usually single.	8. Frequently multiple; and when so, can readily roll one tumor on the other.
9. Nipple always connected with tumor.	9. Nipple always connected with tumor.	9. Nipple may or may not be connected with tumor.	9. Nipple may or may not be connected with tumor.
10. Freely movable at first. Soon adherent.	10. Freely movable at first.	10. Not freely movable.	10. But little movable when deep-seated.
11. Skin normal at first, but becomes implicated early.	11. Skin normal till late in disease.	11. Skin normal.	11. Skin normal.
12. Growth rapid.	12. Growth slow.	12. Growth usually rapid.	12. Growth slow, and may remain small for years, then grow very rapidly. May have a vegetation spring from its wall forming the compound cyst.
13. Nipple projects at first, but soon becomes retracted.	13. Nipple normal at first; may or may not be retracted later.	13. Nipple may or may not be retracted.	13. Nipple may or may not be retracted; is not usually.
14. Surrounding glands soon implicated as the growth is rapid.	14. Surrounding glands not implicated till late in disease.	14. Surrounding glands never implicated.	14. Surrounding glands never implicated.
15. Superficial veins enlarged early.	15. Superficial veins not enlarged till late in disease.	15. Superficial veins may or may not be enlarged.	15. Superficial veins may or may not be enlarged.
16. Puncture.—Tumor soft, but no discharge.	16. Puncture.—Solid.	16. Puncture.—Solid.	16. Puncture.—Fluid.
17. Microscope.—Epithelial cells arranged in alveoli, with no connective tissue separating the cells. The alveoli separated by well-marked connective tissue bundles.	17. Microscope.—The same as soft, except more connective tissue and less cells. The arrangement of cells the same. The cells may break down so as to leave small granules in the alveoli. In this case the epithelial character is lost.	17. Microscope.—Spindle-shaped cells are characteristic. If it be rounded, the cells resemble epithelial cells, but are not so distinctly arranged in alveoli, and have connective tissue running all through between the cells.	17. Microscope.—If primary, the walls are simple connective tissue. If secondary, the walls same character as tumor from which it was formed.

CARCINOMA.

PROF. JAMES Y. SIMPSON, M. D., EDINBURGH,

In speaking of *carcinoma* of the *mammæ*, says the two serious objections to the knife are, the probability of a relapse, and the danger of the operation. Hence, the treatment by *caustics* requires to be considered; these give less pain, and the wound heals more readily than that left by the knife. Nor is the result less complete, as "there is good reason to believe that the modifying influence of the caustic probably sometimes extends also to cells and structures which may be wholly, or only in part, affected and morbidly altered, and which lie beyond the line of immediate extirpation." Caustics may be applied to all forms of cancer. The remedies from which the best have been obtained, are the *chloride of zinc*, used in the form of a paste with starch or flour, the *pernitrate of mercury*, and the *sulphate of zinc*. The latter, when dried and powdered, is a very powerful caustic. Prof. SIMPSON applied it in several cases with complete success. To apply it to the base, or into the interior of a tumor, it may be mixed with sulphuric acid.

The greatest advance in this treatment has been in the more clear and practical views as to the mode of using the caustics, their introduction into the centre or the base, so as to produce quickly mortification of the entire mass. With the sulphate of zinc, an ordinary quill pen may be used. Saturate strong sulphuric acid with the zinc dried and powdered; dip the pen into it, and lay the caustic in a number of lines across the tumor. Soon the skin is killed in the course of these lines; then scratch the filled pen along these lines, and the skin is readily cut through. Fill the fissures with the paste, and every day or two renew it, thus cutting down. In the first application, he usually made a fissure of a fourth or three-eighths of an inch in depth. Thus, in five or six days, a good-sized tumor may be removed. Dress with black wash, chloride of zinc, sulphate of zinc, or nitrate of silver. The healthy skin at the edge of the mass usually granulates, and is partially cicatrized before the dead tumor is separated.

MAISONNEUVE, of Paris, recommends "caustic arrows;" these are pieces of paste of chloride of zinc, in the form of small cones, sharpened to facilitate their entrance into the mass. He usually punctures the tumor all around, and introduces an arrow deeply into each

wound. Or, he introduces, parallel to each other, a number of flattened pieces of the paste.

Perhaps, as these cause severe hemorrhage, arrows of chloride of zinc and perchloride of iron might answer better.

The injection of a sulphate of zinc lotion, or of some other equally powerful caustic, by means of a small syringe, has been tried, but not with the best results as yet. Perhaps, if a larger tube were used, and such articles as the perchloride of iron thrown by one opening, but at different angles, into the mass, more beneficial results might be obtained.

MAMMARY NEURALGIA (MASTODYNIA).

Occasionally during lactation, the mammæ are the seat of intense neuralgia, compelling the woman to abandon nursing unless relieved. For this condition Dr. FORDYCE BARKER has found *quinine* in full doses twice a day an efficient remedy.

It is not uncommon in the early months of pregnancy, and also in non-pregnant women of a hysterical constitution, to find instances of neuralgic pain in the mammæ. In most of these cases, narcotic fomentations, and opium internally, will give relief. Occasionally the hypodermic use of morphia will be requisite.

TANNER speaks well of the *valerianate of iron* or of *zinc*; and also the tincture of *actea racemosa*, combined with small doses of *aconite* where there are signs of engorgement. *Cod-liver oil* has relieved some cases which have resisted all other remedies. He has found quinine chiefly serviceable where some degree of periodicity is manifest. Mental relief will always be given by calming the patient's fears as to the nature of the disease, since directly a nervous woman has pain in the breast, she usually concludes it must be due to cancer.

Dr. ANSTIE says that in some cases, discontinuance of nursing has been found necessary, but generally, complete rest, protection of the breast from air and friction, and the hypodermic injection of *morphia* will rapidly relieve. Very frequently it is the result of malnutrition, and is then readily and permanently cured by an abundance of easily digested, nutritious food. As medicaments, we may use the *tincture of chloride of iron* in full doses, and still better, com-

bine it with *strychnia*, 10 minims of the iron to $\frac{1}{10}$ grain of the strychnia. Arsenic, phosphorus, and belladonna have each proved extremely useful.

GALACTORRHEA.

An excessive flow of milk, while very exhausting to the woman, is exceedingly liable to cause positive and permanent ill health. Many authors relate cases of insanity which were undoubtedly due to an excessive flow of milk inducing anæmia; and the anxiety of the mother to nurse her child, fearing that her increasing weakness would incapacitate her, has culminated in mania, perhaps causing her to take the life of her offspring. The milk itself is apt to be thin and watery, deficient in the vital constituents. The treatment will consist in the generous support of the woman by appropriate food, avoidance of fluids, and the use of astringent tonics. If not readily checked, and the general health shows indications of being affected, lactation may be partially or wholly suspended. *Coffee* is regarded by some authorities as capable of suppressing the supply of milk. The editor has seen it used for this purpose, but as it was associated with other remedies, he is unable to give its true value.

DR. L. DE SINETY.

The general rules are to wean the child; to administer tonics and iron, if the patient is anæmic; and to endeavor to recall the menses by warm, sinapized foot-baths, leeches to the vulva, etc.

Narcotics, as opium, internally, or friction with liniments containing morphia, have some success. So also have compresses wet with muriate of ammonia and iodide of potash.

1477.	R. Ammoniz chloridi, Potassii iodidi, Aquæ,	3 iiss.-v 3 iij f. 3vj.	M.
For local use.			

Internally a combination of white agaric with the iodide gives encouraging results:

1478.	R. Agarici, Potassii iodidi,	gr. iv gr. ij.	M.
For one capsule, four or six times a day.			

But the best curative procedure is systematic *compression*. The mammae should be thickly covered with wadding so as to make a large, elastic cushion. Upon this, broad strips of adhesive plaster should be applied, passing under the arm-pit and quite around the body. It should then be crossed upon the breast sufficiently to compress firmly without too severely pressing the gland. If adhesive plaster cannot be used on account of the sensitiveness of the skin, ordinary rollers may be substituted.

JOHN WM. LANE, M. D., LONDON,

(*Medical Press and Circular*,) for more than ten years has employed the following method to prevent the secretion of milk in the breasts of women who may have had still-born children, or who, after having nursed the child for a few months, found it necessary to wean it.

It consists in taking a piece of adhesive plaster of about ten inches square, round the corners, cut a hole in the centre for the nipple, then from the centre of each corner make a straight cut toward and within two inches of the hole; when it is ready, let the patient lie on her back, her body being perfectly horizontal; warm the plaster and place it over the breast, then strap one of the lower corners down first, draw the opposite one tightly upward and fix its place, then the other lower corner, and lastly the opposite upper one, having drawn it sufficiently tight first; now take a piece of plaster two inches wide and about sixteen or eighteen inches long, and put it on from below and outside the breast, across, close by inside of nipple, and fasten the end over the clavicle; another piece may also be put on in an opposite direction, it being drawn over the shoulder. Of course, in cutting the plaster and strips, the size of the breast must be taken into consideration, there being so much difference in the size of female breasts.

NOTES ON REMEDIES.

Agaricus, gr. iij. in pill, will lessen the secretion in weaning, etc.

Alumen, in powder, boiled in milk, is an efficient popular means to "dry the milk."

Atropia has been found efficient in excessive secretion of milk.

Beliadonna is probably the most efficient drug known to check galactorrhœa.

It should be applied locally and taken internally. When a woman is subject to galactorrhœa during nursing, she should begin the applica-

tion of belladonna ointment to the breasts several months before confinement.

Cannabis Indica. The volatile oil of *cannabis sativa*, employed in warm embrocations on the breasts, is said by COUTEUX to be the best of all agents to check galactorrhœa and prevent mammary engorgements.

Colchicum. It has been observed that cows which eat the meadow saffron have their milk dry up; Dr. KEATING, of Philadelphia, has observed a similar effect in nursing women from the administration of colchicum.

Conium plasters were formerly used to dry up the milk. By a prolonged use of it internally, the mammary gland has been known to become atrophied, and its secretion to have been gradually suspended. (STILLÉ.)

Ergota has a positive influence in galactorrhœa.

Linimentum Saponi-Camphoratum, or *Opodeldoc Balsam*, rubbed on the breasts, has been observed to lessen the secretion, probably owing to the camphor in it.

Potassii Iodidum is the most efficient of all antigalactics, and the only one which will not disappoint at times. The daily dose for this purpose is gr. xx.—xxx.

Rhamnus Catharticus, in infusion, internally, is recommended by Italian physicians. (FONNSAGRIVES.)

Salvia. Strong sage tea is a popular remedy to dry the milk at weaning time.

AGALACTIA AND OLIGOGALACTIA.

PROF. J. B. FONNSAGRIVES, M. D., PARIS.

This writer, (*Thérapeutique Appliquée*, 1778,) states that the agents to increase the secretion of milk, find their application in three events:

1. That the milk is insufficient for the child.
2. That the secretion having become recently suppressed, an effort is made to reëstablish it.
3. The sudden cessation of the secretion is coincident with the development of symptoms more or less serious in the mother.

1. *Means to increase the milk*. True galactogenic agents increase the quantity without diminishing the quality of the milk. Abundant and succulent food, fresh air, plenty of sleep, exercise, and, if required, bitter tonics, are the more rational measures. In Brittany,

cider, beer, and especially oatmeal porridge, have a wide reputation. Of drugs, the *Gallega officinalis* has been asserted on good authority to increase both the quantity and the quality of the milk.

2. *Means to reëstablish the lactation.* When, after temporary intervention, it is desired to renew the secretion, the most efficient agents are: (1) *Suction*, either by the mouth of the infant or the nurse, or by one of the instrumental methods now familiar. (2) *Topical applications.* Of these the leaves of the castor oil plant, *ricinus communis*, deserve special mention. A handful of the fresh leaves is boiled in half a gallon of water, and the breasts are gently bathed and rubbed with this decoction for fifteen or twenty minutes, after which a poultice of the boiled leaves is laid upon the breast, and allowed to remain there till dry. If the secretion does not reappear in a few hours, this is to be repeated. (3) *Faradization.* The apparatus should be of moderate force, the conductors moist; the muscles of the breast should not be included in the current, which should be confined to the gland, and the sessions should last about twenty minutes each. The success with this means has been positive.

3. *To prevent accidents from sudden cessation of milk.* These accidents have been greatly exaggerated by the older teachers of medicine, and these effete notions still prevail among the common people. When they are believed to be present, the indications are to relieve the system by brisk watery purgatives, or to restore the secretion of milk by some of the means which have been above mentioned.

C. H. F. ROUTH, M. D., LONDON.

To induce a flow of milk in the breast, *mechanical* treatment may be applied to the breasts or to the genitalia, (as for instance the effect of the application of the child,) and this should be carefully persevered in.

Electricity is a powerful stimulus, as BECQUEREL, ALTHAUS, SKINNER, and others have proved in repeated cases, where they have succeeded in bringing on or restoring the secretion. SKINNER'S mode is:

Direct. Both poles are covered with moist sponges; the positive is pressed deep into the axilla, and the negative applied to the nipple and areola; the current being no stronger than is agreeable to the patient. Keep this position for about two minutes. Both

poles are then to be inserted into the axilla, and gradually brought together, the negative to the sternal, the positive to the opposite side of the organ. This may occupy about two minutes.

Intra-mammary. Imbed the poles in the mamma, move them about, raising and depressing both at once, in and about the organ for another two minutes. Perform this daily. Generally one or two sittings suffice.

As there exists great sympathy between the breast and the genital organs, the proper functional use of the one, will influence the other.

Women who are nursing should have abundance of fresh air and cleanly surroundings, both of which are aids to lactation. As defective lactation is often induced by improper food, this, too, should be carefully observed, and supplied in sufficient quantities, and of proper quality—fish, rich in phosphorus, as oysters and crabs. In his own experience, he gives the preference to *conger-eel* soup. It is particularly nourishing, and readily improves the appetite and strength. Among vegetables, are the *lentil* powder, pea soup and bean soup, all of which improve the flow and richness of milk. Turnips and potatoes are generally regarded as galactagogues. Edible fungi also increase the secretion. This author particularly lauds the *Elaphomices granulatus* or *Bolctus*, or deer balls.

Drinks are useful, but are apt to be abused, as ale or porter. Best of all is milk itself, which may be alternated with the malt liquors, say two or three tumblers of milk to one of stout, or they may be combined.

Of *medicines*, he has found useful the *Saponaria vaccaria*, cow basil, in strong infusion; the *Sonchus arvensis*, corn sow-thistle, in decoction; and the *Ricinus communis*. The last, ROUTH was the first to use internally as a decoction, in England. Every time the flow has been remarkably increased. Some apparent objections to its use are, a sensation of dimness of vision; the dose requires to be increased; as it appears to lose its effect, a temporary suspension is best. Again, it seems to act as a diuretic. Here the breasts should be kept warm, and this result is less likely to occur. Where the diuretic effect is produced, it is well to smear the extract of the leaves over the breast in the same way as belladonna is used, with a warm, ordinary poultice outside. Dr. ROUTH uses a decoction of the leaves and stalks of the *Ricinus*. When an infusion of this article is given to non-suckling women, he has observed an internal pain in the breasts which lasts three or four days,

and a copious leucorrhœal discharge, after which the pain in the breast disappears.

In two cases he saw emmenagogue effects. In both, there existed uterine congestion. This proves that the remedy should not be used in cases where there is disease or irritation of the womb. Its action is remarkable in that it is not restricted to any particular portion of the suckling period; it may be immediate, that is, within twelve hours; rarely a week elapses before its galactagogue effect is observed; and lastly, its good effects do not wear off after a protracted continuance of its use, but its omission will often lead to a diminution, if not cessation of the secretion.

The *Fatropa manihot*, the *tapioca* or *cassava* plant, is said to act in a similar manner.

The *Coronilla juncia*, milk vetch, commonly called the milk weed, is second only to the castor oil bean; the fennel, dill, carrot, and several others, are popularly used, and no doubt more experience would prove their value.

Common salt may be regarded as a specific galactagogue. *Cod-liver oil* undoubtedly would act efficiently, though it has not been sufficiently tested.

DR. ALEXANDER HARKIN.

The claims of *chlorate of potash* as a galactagogue are strongly urged by this writer. (*Dublin Journal of Medical Science*, Nov., 1880.) He has repeatedly witnessed surprisingly good effects from it within a few days. Its influence, however, appears limited to the first three months of lactation, and there are some constitutions quite uninfluenced by its use. Those which respond most promptly are women of a sanguine temperament. The milk is also of an excellent quality, and the nursling often improves marvelously under its use. He usually prescribes it as follows:

1479. R. Potassii chloratis,
Aquæ,

℥j
Oj. M.

Half a wineglassful three times a day.

There is a condition well known to the profession in which ladies complain to their medical adviser of debility and wasting, night perspirations, palpitation and pain in the left side under the mamma, due to prolonged lactation; the mother is unwilling, or unable perhaps through delicacy of the child, to consent to ablactation. In

this case, so very often occurring, by the administration of the chlorate combined with the tr. ferri perchlor., she may be enabled to prolong her maternal duties through the restoration of her strength, the increase of the secretion and improvement of its character, and the subsidence of the lateral pain.

NOTES ON REMEDIES.

Feniculum in hot infusion, or a few drops of the oil, are popular remedies in deficient secretion.

Gallega. The goat's rue has a reputation in France. The *Gallega Virginiana* of this country has a similar repute in some parts of the United States. (STILLÉ.)

Gossypium. Dr. ISETT W ANDERSON, of Jamaica, reports to the Obstetrical Society of London that he found a tea prepared from the green leaves of the *Gossypium barbadense* to be an efficacious galactagogue.

Jaborandi has been suggested by ROEHRIG.

Ricinus. Castor-oil plant leaves are alleged to be very efficient.

Faradization is much praised by French writers.

Fomentations, warm or hot, will frequently restore the secretion when temporarily checked. DE SINETY remarks that they probably act rather on the imagination than on the glands.

DISEASES OF THE NIPPLES.

PROF. FORDYCE BARKER, M. D., NEW YORK,

For sore nipples, recommends the following:

1480. R. Plumbi nitrat.,
Glycerinæ,

gr. x.-xx
f. ʒj.

M.

He also directs, as soon as the child is taken from the breast, that the nipple be painted freely with the compound tincture of *benzoin*.

If the ulcerative process has commenced, stop nursing from that nipple and paint it with a solution of *nitrate of silver*, of the strength of gr. x. to f. ʒj. of distilled water. For inflammation of the nipple he recommends a soft bread and milk poultice for a few hours, and then keep the breast covered with one or two thicknesses of linen wet with the solution of lead and opium.

1481. R.	Aquæ rosæ, Liq. plumbi subacet. dil., Ext. opii aq.,	f. ʒ iijss f. ʒ ss ʒj.	M.
Ft. lotio.			

After the inflammation is so far subdued that nursing can be borne without much pain, he applies the following after carefully washing the nipple:

1482. R.	Aquæ rosæ, Glycerinæ, Acidi tannici,	aa f. ʒ ij ʒ ij.	M.
Ft. lotio.			

In *L'Union Médicale du Canada*, January, 1879, the treatment recommended by M. BROCHARD for fissured nipples is so simple that it deserves to be popularized. When chaps exist on the nipples, whatever their extent, the nipple should be washed with pure water, and then dried and dusted with *suberin*, which, as is known, is impalpable cork powder. The author has used it for several years, and prefers it to *lycopodium* for infants.

Dr. HAUSSMANN, of Berlin, recommends compresses soaked in a five per cent. lotion of *carbolic acid*, and changed every two or three hours, as the best remedy for sore nipples. If both breasts are affected, and, nevertheless, suckling has to be carried on, the nipple must be carefully washed each time, before the infant is put to them, to prevent poisoning by the acid.

The treatment pursued by Dr. HUEBNER, of Dresden, Saxony, in all lesions of the nipple and areola, consists in the constant application, day and night, of lukewarm compresses, wet with *lead-water*; fissures, ulcers and excoriations being touched once or twice a day with *balsam of Peru*, and the breast well supported. The child should nurse less often than usual, and, if possible, through a nipple-shield. He recommends the warm lead-water in mastitis also, to be followed by strapping of the breast and free incision, while suppuration is promoted by poulticing.

In chaps of the nipple, Dr. CHARRIER, of Paris, recommends the employment of perfectly pure *picric acid* in the following formulas: *a*. One and a half parts to 100 parts of distilled water. *b*. One part to the 100 parts. After thoroughly cleansing the nipple with tepid water, the solution *a* is to be applied to the cracks every morning with a pencil; and immediately after suckling, the nipple is to be held for four minutes in a glass containing the solution *b*. The infants do

not notice the bitterness of the medicine, and willingly take the breast.

Dr. LE DE BORDIER, of Paris, thinks that in obstinate fissure of the nipple, *quinine* will prove to be of the greatest service; and during a long experience of it, has always found that a cure was effected in from three to five days. He generally prescribed a dose of 6 grains early in the morning, and a similar dose about eleven o'clock A. M. Local treatment was considered of secondary importance, being confined chiefly to poultices and some simple wash or salve.

Dr. OEHREN, (*Therapeutische Monatschrift*), recommends ichthyol in the treatment of sore nipples, according to the following formula :

1483. R.	Ichthyol,	3j
	Lanoline,	
	Glycerine,	āā 3i ¼
	Olive oil,	3iiss.

The pain disappears after the first application, and the fissures heal quickly. It is easily washed off before nursing, and is perfectly harmless.

PROF. W. S. PLAYFAIR, M. D., LONDON.

Prepare the nipple during the latter months of pregnancy, by daily bathing it with a spirituous or astringent lotion, as cologne and water, or a weak solution of *tannin*. Wash and dry the nipple after each act of nursing, and if tender, protect it with a shield. Dr. WILSON, of Glasgow, in fissures of the nipple, uses a lotion of ten grains of *nitrate of lead* in an ounce of glycerine, applied after each time of nursing, the nipple being carefully washed before the child is allowed to nurse.

• This author finds nothing so good as a lotion of one-half an ounce each of sulphuric acid and glycerine of tannin, and an ounce of water, the beneficial effects of which are sometimes remarkable.

PROF. WM. LEISHMAN, M. D., GLASGOW,

Uses in obstinate cases :

1484. R.	Ac. tannici,	gr. iij	
	Glycerini,	f. 3ss	
	Ung. cetacei,	3j.	M.

In fissures, introduce this by means of lint. If the margin be callos, apply solid nitrate of silver.

PROF. FLEETWOOD CHURCHILL, M. D., DUBLIN,

Prefers nitrate of silver in weak solution applied after each nursing. Mr. DRUITT recommends five grains of pure *tannin* in an ounce of distilled water. Dr. JOHNSON applies alternately :

1485. R.	Sodæ boracis, Crete præp., Spt. vini, Aq. rosæ,	3ij 3j f. 3 iij.	M.
Ft. lotio.		aa	
1486. R.	Ceræ albæ, Ol. amygal. dulc., Mel. despumat.,	3 ivss f. 3 j f. 3 ss	
Dissolve by heat, then add gradually,	Bals. Peruvian,	f. 3 ijss.	M.
Ft. unguent.		.	

Drs. MCCLINTOCK and HARDY use tincture of *catechu*.

M. BOURDELL applies lint soaked in tincture of *benzoin*, repeated so as to form a coating over the sore.

SAMUEL SLOAN, M. D., GLASGOW,

(*Obst. Jour. Gt. Brit. and Ire.*, Jan., 1878,) employs prophylaxis against sore nipples. He puts a large teaspoonful of dry *tea* into one ounce of brandy and a quarter of an ounce of glycerine. With occasional shaking, after a few days it is ready. For two or three months prior to delivery, the nipples are to be washed nightly with cold water and glycerine soap, dried, and the above solution brushed over the nipple and its base. In the morning, lard is well rubbed in. The dress must be loose, and retracted nipples drawn out. After delivery, moisten the nipple at each nursing, and after it wash with whiskey, tincture of arnica and glycerine, each a teaspoonful in a wineglassful of cold water. The nipple shield must be used to prevent irritation by the dress. When suckling deprives the nipple of its natural oil, apply fresh, oxide of zinc ointment.

PROF. F. WINCKEL, M. D.

In simple erythema and phlegmon, compresses wet with lead-water may be applied, taking care to cleanse the nipples before nursing. If there are slight erosions or excoriations, use a solution of *nitrate of silver*, one part to thirty; or *alum, sulphate of zinc*, etc., or *tannin*, one to fifty. Ulcers may be covered with balsam of Peru or copaiba, always using a shield to prevent a continuance of the irritation. When the raw spots remain, or the ulcers increase.

the patient has fever, etc., wean the child. VELPEAU uses lotions of lead-water, or of oil and red wine, oil and lime-water, equal parts, nitrate of silver or sulphate of zinc, one or two parts to six of water. Cracks, he sprinkles with the seeds of earth moss. Inflammation he treats with local discutients, mercurial salves and poultices.

LEGROUX paints the parts with : .

1487. R.	Collodion,	30 p.
	Castor oil,	$\frac{1}{2}$ p.
	Oil of turpentine,	$1\frac{1}{2}$ p.

And then covers them with gold-beater's skin, perforated with pin holes over the apex of the nipple. Soften this covering with sugar and water before the child nurses.

BOURDEL and ANSELMIER use the powder and tincture of *benzoin*.

ELSASSER uses oil of *cloves* with lime-water in inflammation, and in painful bleeding excoriations, applies unguent. rosæ, with laudanum and *oxide of zinc*. Ulcers, he covers with balsam of Peru.

NOTES ON REMEDIES.

Acacia is extolled by WILSON and others as an excellent application.

Argenti Nitras is a useful application. The caustic pencil may be applied to the fissures or ulcers, or the part may be enveloped in lint wet with a weak solution. It is especially called for when the fissure is at the base of the nipple, and very painful. After the caustic, compound tincture of benzoin should be applied.

Balsamum Peruvianum is valuable for local use. HUFELAND recommends :

1488. R.	Balsami Peruviani,	f. 3ij	
	Olei amygdal. dulc.,	f. 3 iss	
	Pulv. acaciæ,	3ij	
	Aquæ rosæ,	f. 3j.	M.

Apply five or six times a day.

Dr. TAUSZKY says, (*Med. Record*, September, 1880,) that this prescription has never failed him during a practice of twenty years.

Benzoini Tinctura Comp. may be used with most satisfactory results in most cases. Wipe the nipple dry after the child has nursed, and with a brush apply four or five coats of the tincture. It may at first produce some burning, but cicatrization will soon take place under this coating. It does not interfere in the least with lactation.

Bismuthi Subnitrates. As a neutral protective and absorbent powder, none can be found superior to this.

Calcis Liquor is a soothing application in light cases.

Carbolicum Acidum has been much praised by Dr. HAUSSMAN, of Berlin. Its advantage is, he claims, its capability not only of reaching and superficially cauterizing the open mouths of the finest lymphatic vessels laid bare in the wound, but also of *penetrating completely* into them, so as to destroy any parasitic germs or infectious organic bodies of any kind which may be brought to the nipple by the child's mouth, the hands of the mother, doctor, or nurse, or in any other way, and so prevent the development of the various forms of inflammation in the breast itself. The application of carbolic acid is not nearly so painful as that of nitrate of silver, and a cure is obtained more quickly with the former than the latter drug. A strong (five per cent.) solution seems to be decidedly more efficacious than a weaker (two per cent.) solution.

Collodion is a protective agent, often of service. Dr. ALBERT H. SMITH, of Philadelphia, employs :

1489. R.	Emplastri plumbi,	3ij	
	Ætheris,	f. 3ss	
	Collodion flexile,	f. 3j.	M.

Powder the lead-plaster, add the ether, and mix them well together before adding the collodion. It makes a creamy mixture, and is to be applied with a brush over every portion of the carefully dried nipple, with the exception of the opening of the milk ducts.

Galla has been found useful by Dr. Q. C. SMITH.

1490. R.	Pulv. gallæ,	3i	
	Olei menthæ piper.,	gtt. x	
	Tinct. opii camphor.,	q. s.	M.

Make a thick paste and apply just after the child nurses. It should be removed by gentle washing before the infant nurses again.

Glycerina is much employed as an excipient. The glyceroles of lead, tannin, etc., are frequently efficient.

Hydrargyri Chloridum Mite. When the ulceration has destroyed the surface of the nipple, Dr. BARKER recommends that the child be prevented from nursing, and the following applied :

1491. R.	Hydrargyri chloridi mitis,	gr. xxx	
	Magnesiæ,	gr. xx	
	Unguenti rosæ,	3j.	M.

Rub together very carefully, and prepare fresh daily.

Hydrastis has been found to be a valuable application in cracks or fissures of the nipple.

Iodoformum. Dr. M. O'HARA, of Philadelphia, uses :

1492. R.	Iodoformi,	3ss	
	Collodion,	f. 3j.	M.

Krameria is popular with some.

Picricum Acidum has been extolled by Dr. CHARRIER.

Pix Liquida is a valuable local application in eczematous conditions of the nipple.

Plumbi Nitratis is, according to Dr. BARKER, the most complete prophylactic against the occurrence of sore nipple that we have. He directs, as soon as there is any inflammation of the nipple, to apply a poultice until the immediate symptoms are subdued, and then apply a solution of nitrate of lead gr. x., to glycerine f. ʒj. It should be used immediately after nursing, having washed the nipple perfectly clean. The nitrate is said to be of little use after fissures have actually occurred.

Plumbi Sabacetatis Liquor is a grateful lotion, properly diluted.

Salicylicum Acidum has been tried with excellent results in cracked and lacerated nipples. It is important not to apply it too strong, or it will irritate. Numerous and careful trials in the Vienna Hospitals have decided that the strength must not be over four per cent., as :

1493. R.	Acidi salicylici,	gr. xv-xx	
	Alcoholis,	q. s. to dissolve.	
	Petrolati,	ʒj.	M.

Apply on lint or rub in, several times a day.

Sodii Biboratis in solution and ointment has a long-standing reputation.

Suberin has been recommended.

Tannicum Acidum is an excellent astringent. Dr. S. S. PURPLE, of New York (*Medical Record*, 1879), employs :

1494. R.	Acidi tannici,	ʒj	
	Acaciæ mucilaginis,	f. ʒ iij	
	Aquæ,	f. ʒ ij.	M.

It can be applied to the nipple and breast with the finger, and should remain exposed to the air until perfectly dry. The glass can then be worn over the nipple to protect it from the clothing. Dr. Purple says that he usually had no trouble in managing the case in this way.

Dr. HOWELL recommends the following in the *Canada Medical Record*, 1881 :

1495. R.	Tannin,	ʒi	
	Subnit. bismuth,	ʒij	
	Vaseline,	ʒj.	M.

SIG.—To be applied constantly when the child is not nursing.

Zinci Oxidum is a soothing application in the form of the benzoated ointment.

INDICES.

I. INDEX OF AUTHORS.

- Abercrombie, M., England, 283.
 Acton, William, England, 606.
 Adams, D. S., United States, 1073.
 Adams, W., England, 446.
 Adrain, Adolph, Germany, 105.
 Agnew, D. Hayes, United States, 50, 63, 73, 216, 387, 450, 469, 534, 565, 655, 667.
 Aitken, William, Scotland, 281, 356, 617.
 Alison, Dr., France, 239, 246.
 Allbut, T. Clifford, England, 381.
 Allen, C. W., United States, 185, 187, 196.
 Allen, H. R., United States, 445.
 Allingham, William, England, 470, 479, 484, 485.
 Allis, Oscar H., United States, 28.
 Althaus, Julius, England, 624.
 Alvarenga, Prof., Portugal, 196.
 Alvares, Dr., 604.
 Amann, Joseph, Germany, 1059.
 Amussat, Adolphe, France, 111, 165.
 Anderson, McCall, England, 71, 347, 377, 617.
 Andrews, E. G., United States, 639.
 Andrews, R. H., United States, 815, 841.
 Anger, M. T., France, 729.
 Anstie, Prof., Scotland, 548, 710, 1077.
 Aran, F. A., France, 820.
 Arding, W., England, 382.
 Arkhangelsky, Dr., Russia, 150, 153.
 Arnoldoff, Dr., Russia, 182.
 Arnott, Neill, England, 45, 743.
 Ashhurst, John, United States, 73, 243, 378, 897.
 Ashmead, George, England, 601.
 Atkinson, Edward, England, 659.
 Atlee, W. L., United States, 37, 147, 512, 741, 897.
 Atthill, Lombe, Ireland, 802, 854, 911.
 Aubert, Dr., France, 21.
 Audhoni, Dr., France, 468.
 Austin, J. A., England, 645.
 Bader, Mr., England, 708.
 Bailey, J. S., United States, 344.
 Balfour, G. W., England, 382.
 Balzer, Dr., 627.
 Barber, O. P., United States, 269.
 Barbiglia, Eugenio, Italy, 976.
 Barclay, Dr., England, 283.
 Bardet, Dr., France, 404.
 Barker, A. E., England, 231.
 Barker, Fordyce, United States, 215, 469, 1032, 1037, 1042, 1060, 1062, 1063, 1077, 1084.
 Barkoff, Dr., Russia, 182.
 Barnes, Robert, England, 804, 848, 865, 949.
 Barry, W. H., United States, 769.
 Bartholow, Roberts, United States, 64, 162, 193, 206, 208, 220, 375, 382, 384, 406, 470, 500, 525, 545, 553, 565, 604, 622, 741, 786, 812, 836, 999.
 Bartlett, John, United States, 721.
 Barton, J. K., England, 617, 631.
 Barwell, R., England, 649.
 Basham, Dr., 393.
 Battye, F., Scotland, 756.
 Baudelocque, Dr., France, 767.
 Bauer, Louis, United States, 578.
 Bayes, Dr., 722.
 Beard, G. M., United States, 47, 534, 541, 567, 715, 757.
 Beardsley, G. L., United States, 258.
 Beauchamp, Mr., England, 303.
 Beauquinque, M., France, 241.
 Beaver, D. B., United States, 249.
 Bedford, G. S., United States, 503, 692.
 Begbie, W., Scotland, 766.
 Bell, Charles, Scotland, 192.
 Bell, Joseph, Scotland, 214, 434.
 Bell, J. H., United States, 38.
 Bell, Robert, England, 790, 896.
 Benedikt, Dr., Germany, 503.
 Bennett, J. H., London, 742, 1009.
 Bennett, E. H., Ireland, 93.
 Bergeron, Dr., France, 433, 771.
 Bergé, Dr., United States, 329.
 Bernard, Charles, France, 39.
 Bernardy, E. P., United States, 119.
 Bernay, Prof., United States, 443.
 Bert, Paul, France, 35.
 Besnier, Prof., France, 287, 339, 343.
 Bestuscheff, Dr., Germany, 192.
 Betton, Thomas, United States, 578.
 Bevan, Dr., Ireland, 271.
 Beyran, Dr., 584.
 Bibber, John van, United States, 179.
 Bibron, Dr., United States, 151.
 Bidder, Dr., Germany, 220, 638.
 Bietl, Dr., France, 631.
 Bigelow, H. J., United States, 46, 737.

- Bill, J. H., United States, 137.
 Billroth, Theodor, Austria, 110, 128, 157, 163,
 166, 170, 184, 203, 213, 215, 232, 234, 244,
 266, 286, 381, 385, 641, 645, 652, 1066.
 Binkerd, A. D., United States, 269.
 Black, D. Campbell, England, 566.
 Blair, David, Scotland, 115.
 Bligh, J. W., Canada, 605.
 Bliss, C., United States, 281, 567.
 Boer, Dr., Germany, 627.
 Boinett, Dr., France, 630, 916.
 Boisliniere, Dr., France, 425.
 Bompaire, Dr., France, 182.
 Bonwill, W. G., United States, 18.
 Boon, A. P., West Indies, 217.
 Borlée, Prof., Belgium, 114.
 Bottini, Prof., Italy, 513.
 Bouchut, Prof., France, 20, 313, 931.
 Boucsein, G. F., United States, 424.
 Bouilly, Prof., France, 493, 527, 592.
 Bourguignon, Dr., France, 260.
 Bozy, Prof., France, 593.
 Brabazon, Dr., England, 955.
 Bradley, S. M., England, 243, 735.
 Brainard, Daniel, United States, 149, 658, 660.
 Braithwaite, James, England, 255, 694.
 Bramann, F., Germany, 89.
 Bredin, J. N., United States, 604.
 Breima, Dr., Italy, 589.
 Bridge, Norman, United States, 464.
 Bright, J. W., United States, 748.
 Brinchley, N., United States, 509.
 Brindisi, Prof., Italy, 580.
 Brinton, J. H., United States, 207, 259, 270,
 330.
 Brinton, William, England, 459.
 Brocare, M., France, 195.
 Brochard, M., Canada, 1085.
 Brocq, Prof., France, 287, 288.
 Brodhurst, Bernard, England, 598.
 Brodie, Sir Benjamin, England, 274, 500, 601,
 741.
 Brooke, Dr., England, 330, 352.
 Brown, Bedford, United States, 200, 204.
 Brown, I. Baker, England, 551, 910, 932.
 Brown, Paul R., United States, 135.
 Brown, S. A., United States, 344.
 Browne, Lennox, England, 415, 426, 726.
 Browning, Dr., Australia, 715.
 Brunton, T. Lauder, England, 25, 147, 152,
 171.
 Bryant, J. D., United States, 450.
 Bryant, Thomas, England, 75, 108, 113, 124,
 165, 166, 178, 680.
 Büchler, Dr., 625.
 Buck, Dr., England, 418.
 Buck, Gordon, United States, 270, 718.
 Buckler, T. A., United States, 874.
 Budd, C. A., United States, 723.
 Buisson, Dr., France, 147.
 Bulkley, L. Duncan, United States, 245, 297,
 310, 312, 315, 322, 325, 332, 333, 339, 353.
 Bull, Charles S., United States, 704.
 Bumstead, F. J., United States, 512, 576, 601,
 602, 613, 933.
 Burke, Martin, United States, 116.
 Burnett, Charles H., United States, 715, 716.
 Burnett, J. B. United States, 250.
 Burnett, Sir W., England, 123.
 Busch, Prof., Germany, 756.
 Butler, George O., United States, 224.
 Butler, S. W., United States, 520.
 Buys, Dr., France, 915.
 Byford, W. H., United States, 767, 770, 837,
 852, 894, 931.
 Cain, Dr., United States, 855.
 Callender, G. W., England, 50, 94, 121, 230.
 Cameron, Mr., India, 735.
 Campbell, A. S., United States, 709.
 Cane, Leonard, England, 105, 302.
 Capart, Dr., France, 419.
 Carmichael, Dr., Ireland, 754.
 Carobak, C., Austria, 773.
 Carrère, Dr., Belgium, 479.
 Carter, R. B., England, 684, 697, 702, 711,
 712, 713.
 Casselis, J. P., Ireland, 661.
 Casselau, Dr., France, 581.
 Cattani, Prof., Italy, 221.
 Cavelli, Dr., France, 387.
 Cayet, Dr., France, 188.
 Cazenove, A., France, 288.
 Cehak, Dr., Germany, 626.
 Celsus, 428, 548.
 Cerna, David, United States, 35.
 Cerne, Dr., France, 25.
 Cezard, M., France, 181.
 Chadwick, J. R., United States, 63.
 Champoniere, Dr., France, 229.
 Chapman, G. H., United States, 117.
 Charpentier, Dr., France, 340, 994.
 Charrier, Dr., France, 1085, 1090.
 Chase, S. B., United States, 162.
 Chassaignac, Prof., 113, 733.
 Chauvel, M., France, 44.
 Cheever, D. W., United States, 173, 370.
 Chew, S. C., United States, 394.
 Cheyne, Watson, England, 126.
 Chisholm, J. J., United States, 705, 707, 723.
 Chopard, Dr., France, 223.
 Churchill, Fleetwood, Ireland, 842, 973, 1087.
 Clark, Alonzo, United States, 213.
 Clarke, Sir Charles, England, 915.
 Clarke, Fairlie, England, 64.
 Clausi, Dr., Italy, 459.
 Clay, Charles, England, 973.
 Clay, John, England, 756, 902.
 Cleeman, Dr., United States, 145.
 Clemens, Theodore, Germany, 214.
 Cleveland, John, Ireland, 483.
 Clever, J. T., England, 33.
 Cohen, J. Solis, United States, 414.
 Cohen, S. Solis, United States, 416, 435.
 Cohnstein, Dr., Germany, 908.
 Cole, Beverly, United States, 876.
 Colles, A., Ireland, 395.
 Colley, Davies, England, 181, 655.
 Conner, P. S., United States, 136.
 Coomes, M. F., United States, 46, 691.

- Cooper, Sir Astley, England, 741, 753.
 Cooper, Bransby, England, 452.
 Coote, Holmes, England, 584.
 Copeland, J., England, 193, 194, 407, 765.
 Corley, A. H., Ireland, 654.
 Corput, Dr. van den, Belgium, 601.
 Costello, W. B., England, 569.
 Coster, Dr., England, 353.
 Cottle, Dr., 654.
 Coues, Dr., United States, 139.
 Courty, Prof., France, 808, 811, 878.
 Cowell, George, England, 243.
 Cowen, Philip, England, 256.
 Cowling, R. O., United States, 452, 648.
 Crequy, Dr., France, 631.
 Croft, Mr., England, 250.
 Crook, O., United States, 752.
 Croom, J. Halliday, Scotland, 955.
 Crosby, N. B., United States, 111.
 Croskey, Dr., United States, 102.
 Cross, Prof., 645.
 Cullen, Dr., United States, 102.
 Cullerier, A., France, 530, 576, 621.
 Culver, Dr., United States, 146.
 Curling, Mr., England, 556.
 Curran, J. Waring, England, 569, 786, 842.
 Currie, Eugene, France, 120, 752.
 Cutter, Ephraim, United States, 639, 796.
 Czadek, Charles, Russia, 623.
 Czarda, Dr., Germany, 724.
 Czempin, Prof., Germany, 832.
- Da Costa, J. M., United States, 67, 304, 307,
 322, 327, 341, 360, 374, 381, 394, 420, 733.
 Darby, J. T., United States, 925.
 Darvosky, Dr., Germany, 600.
 Dastre, Prof., France, 21.
 Dauvergne, Dr., France, 352.
 Davaine, M., France, 181.
 Davis, G. G., United States, 248.
 Davis, N. S., United States, 442, 823.
 Davy, Dr., England, 679.
 Dawson, Dr., United States, 388.
 Deaderick, C., United States, 476.
 Deaver, J. B., United States, 135.
 Debreuil, Dr., France, 733.
 Deecke, Theodore, United States, 500.
 Delieux, Dr., France, 241.
 De Lallis, Dr., France, 346.
 Delpech, M., France, 194.
 Demarquay, Prof., France, 105, 735.
 Demmé, T. A., United States, 40.
 Denison, C., United States, 447.
 Dennis, F., United States, 345, 642.
 Denucé, M., France, 380.
 Dercum, F. X., United States, 171.
 Deschages, Prof., France, 1033.
 De Sinety, L., France, 783, 797, 808, 825,
 856, 873, 893, 912, 918, 950, 1078.
 Desmartis, M., France, 195.
 Després, A., France, 822, 842.
 D'Estrees, D., France, 520.
 D'Etiolles, L., France, 456.
 Dewees, Dr., United States, 40, 195.
 Dibbrell, J. H., Jr., United States, 239.
- Dick, Dr., England, 602.
 Diday, A., France, 554, 571, 634.
 Diehl, Dr., United States, 31.
 Dielenberger, Emil, Austria, 805, 821, 830.
 Dioscorides, 412.
 Dittel, Prof., Austria, 244, 516.
 Dixon, Samuel G., United States, 329.
 Dock, George, United, States, 526.
 Dodge, W. T., United States, 465.
 Dolbeau, H. F., France, 114.
 Dor, Dr., France, 712.
 Dowell, Greenville, United States, 470.
 Dowse, T. S., England, 259.
 Drakin, I. N., United States, 451.
 Drapes, Prof., Germany, 1011.
 Druitt, Robert, England, 72, 256, 498, 524, 584.
 Drysdale, Charles R., England, 819.
 Drysdale, T. M., United States, 794.
 Dubois, H. S., United States, 764.
 Duboué, Dr., France, 146.
 Du Castel, Dr., 633.
 Duchenne, Prof., France, 457.
 Duckworth, Sir Dyce, England, 355.
 Dugas, L. A., United States, 205, 265.
 Duhring, L. A., 292, 311, 317, 324, 325, 334,
 335, 341, 347, 349, 353.
 Dujardin-Beaumetz, Prof., France, 471, 518.
 Dumbreicher, Dr., Germany, 244.
 Duncan, J. Matthews, England, 782, 784, 819,
 872, 928.
 Dunn, W. W., United States, 346.
 Dupins, T. R., Canada, 161.
 Dupont, Dr., Argentine, 525.
 Durkee, Silas, United States, 531, 583, 601,
 607, 609.
- Eade, Peter, England, 236.
 Ebstein, William, Germany, 441.
 Edis, Arthur W., England, 906, 933.
 Edlefsen, Dr., Norway, 496.
 Ehrle, Dr., England, 159.
 Ehrlich, Dr., Germany, 46.
 Eichler, Alfred, United States, 622.
 Eilan, E. W., United States, 83.
 Elliott, G. T., United States, 470.
 Ellis, Robert, England, 868.
 Eloy, Dr., France, 914.
 Emmet, Thos. Addis, United States, 883, 890,
 902, 952.
 Engelmann, Dr., Prussia, 892.
 English, Dr., Austria, 394.
 Erichsen, John E., England, 51, 58, 111, 120,
 162, 176, 183, 210, 233, 248, 257, 446, 449,
 452, 501, 769.
 Eschricht, Dr., Germany, 30.
 Esmarch, F., Germany, 133, 653, 743.
 Estradère, Dr., France, 182.
 Everett, J. T., United States, 896.
- Fagge, Hilton, England, 384.
 Fahnestock, Dr., United States, 195, 1001.
 Fano, Dr., France, 708.
 Fauvel, Dr., France, 48.
 Fayrer, Sir James, England, 147, 280.
 Felsenberg, Dr., Austria, 416.

- Fell, Dr., United States, 749.
 Fenwick, William, Scotland, 221.
 Fergus, Mr., Scotland, 286.
 Ferrall, O., Ireland, 243.
 Feulard, Dr., France, 327.
 Field, Henry M., United States, 918.
 Finotti, Dr., Italy, 221.
 Firnat, John, United States, 196.
 Fiske, H. M., United States, 710.
 Fitz, R. H., United States, 460.
 Fitzgibbon, Henry, Ireland, 222.
 Flagg, J. F., United States, 402.
 Fleiner, Wilhelm, Germany, 589.
 Fleming, A., England, 767.
 Fleischer, Dr., Germany, 753.
 Flint, F., United States, 381.
 Fonnasgrievies, J. B., France, 805, 820, 1080.
 Foote, Dr., United States, 100.
 Forbes, W. S., United States, 135, 142.
 Forcheimer, F., United States, 213.
 Forrest, W. E., United States, 461.
 Forges, M. de, France, 248.
 Forgey, A. V., United States, 146.
 Forné, Dr., France, 754.
 Fort, C. H., United States, 769.
 Fothergill, J. M., England, 60, 177, 190, 381, 382, 787.
 Fournier, Dr., France, 634.
 Fowler, C. N., United States, 957.
 Fox, T., England, 293, 309, 312, 318, 327, 332, 336, 342, 354.
 Fränkel, Bernard, Germany, 417, 675.
 Fraser, Dr., England, 220, 224.
 Fricke, Prof., Germany, 165.
 Friedheim, Dr., Germany, 572.
 Frisbie, C. W., United States, 520, 822.
 Frissell, John, United States, 754.
 Fritz, Dr., France, 806.
 Fritzinger, R. J., United States, 434.
 Fuller, William, Canada, 178.
 Gage, Dr., United States, 526.
 Gailleton, Dr., France, 310, 340.
 Galabin, N. L., 911.
 Gall, Dr., Germany, 547.
 Gallard, M. T., France, 930.
 Gallois, N., France, 407, 420, 578.
 Gallois, F. A., France, 896.
 Galloway, W. C., United States, 948.
 Gamgee, Arthur, England, 544.
 Gamgee, Sampson, England, 51, 112, 254, 262, 647.
 Gant, F. J., England, 178.
 Gant, S., United States, 483.
 Garratt, A. C., United States, 936.
 Garretson, J. E., United States, 157, 189, 397, 404, 421, 427, 653, 671, 751, 757.
 Garrod, A. B., England, 499, 596.
 Gascoyne, G. G., 564.
 Gastein, Dr., Germany, 48.
 Gaston, Dr., United States, 101.
 Gaucher, Prof., France, 337.
 Gaudriot, Dr., France, 927.
 Gay, John, England, 734.
 Gayton, Dr., 696.
 Geddings, J. M. F., United States, 597.
 Gedeke, Dr., Germany, 90.
 Gehrung, E. C., United States, 888.
 Gerhart, Prof., Germany, 48.
 Gerster, A. P., United States, 86, 91.
 Gezow, Dr., Russia, 739.
 Giacomini, Dr., Italy, 288.
 Gibbons, Henry, Jr., United States, 18.
 Gilbert, S. T., United States, 949.
 Givaldis, Dr., Germany, 380.
 Glasgow, Dr., United States, 48.
 Glover, J. G., England, 245.
 Gluck, Dr., United States, 42.
 Godfrey, Mr., England, 391.
 Godon, F. W., United States, 604.
 Godson, Clement, England, 971.
 Goelet, Dr., United States, 831, 947, 948.
 Gold, Dr., Russia, 626.
 Goldsmith, M., United States, 194, 201.
 Goldsmith, W. F., United States, 879.
 Goodell, William, United States, 782, 833, 877, 898, 899, 953, 1050.
 Gorham, John, England, 648.
 Gosselin, Prof., France, 23.
 Gottschalk, Prof., Germany, 858.
 Gottstein, Dr., Germany, 188.
 Gougenheim, Dr., Germany, 416.
 Gould, S. W., United States, 1070.
 Gouley, J. W. S., United States, 522.
 Graefe, Dr. von, Germany, 686, 715.
 Graham, Douglas, United States, 813.
 Grandclement, Dr., France, 44.
 Graves, R. J., Ireland, 255, 382, 802.
 Green, Horace, United States, 630.
 Green, John, United States, 696.
 Greene, Warren, United States, 260.
 Grimshaw, T. W., Ireland, 377.
 Gritti, Rocco, Italy, 104.
 Gross, S. D., United States, 23, 53, 65, 111, 156, 160, 162, 172, 176, 183, 202, 205, 214, 233, 238, 244, 246, 247, 250, 269, 286, 473, 494, 506, 512, 543, 559, 607, 614, 619, 621, 637, 668, 673, 733, 759, 765.
 Gross, S. W., United States, 538, 630.
 Gruber, Prof., Germany, 715.
 Gru, Charles, United States, 205.
 Grymzala, Dr., Russia, 144.
 Gubler, Prof., France, 256, 654, 709.
 Guerin, A., France, 106.
 Guerin, J., France, 238.
 Guipon, Dr., France, 566, 917.
 Guyon, Prof., France, 183, 480, 491, 502, 507, 588.
 Haberkorn, Dr., Germany, 424, 606.
 Haffter, Dr., Switzerland, 31.
 Haines, Dr., United States, 628.
 Halford, Prof., Australia, 149.
 Hall, A. R., England, 693, 698, 708.
 Hall, C. B., United States, 238.
 Hallopeau, Dr., France, 188.
 Halstead, Prof., United States, 126.
 Hamilton, F. H., United States, 29, 51.
 Hammond, W. A., United States, 508, 543, 579, 586, 605, 738.

- Hanner, Dr., England, 412.
 Hardman, William, England, 707.
 Hardy, Prof., France, 244, 246, 332, 358.
 Harkin, Alexander, England, 844, 1083.
 Harley, George, England, 223, 517, 524.
 Harrison, R., England, 680.
 Hart, C. T., United States, 754.
 Harte, R. H., United States, 253.
 Hartman, Dr., 627.
 Hartshorne, Edward, United States, 345.
 Hartshorne, Henry, United States, 145, 280, 477, 547, 822.
 Hartzell, M. B., United States, 305.
 Hasse, Dr., Germany, 742, 752.
 Hatch, F. W., United States, 729.
 Haussmann, Dr., Germany, 1085, 1089.
 Hawkins, Dr., England, 413.
 Hawkins, Thomas, United States, 458.
 Hays, P. S., United States, 812.
 Hazlewood, A., United States, 475.
 Heady, J. T., United States, 242.
 Heath, Christopher, England, 232, 246, 410, 417.
 Heath, G. T., England, 164.
 Heaton, G., United States, 453.
 Hebra, Prof., Austria, 208, 305, 309, 331, 335, 348.
 Hecker, Dr., United States, 177.
 Hedemus, Dr., Germany, 677.
 Hehir, Surgeon, India, 423.
 Heiberg, Dr., Norway, 26.
 Heine, Prof., Germany, 514.
 Henderson, T. B., England, 606.
 Hennen, Dr., England, 527.
 Herman, Prof., England, 799.
 Herrick, O. E., United States, 881.
 Herrnant, E., Belgium, 118.
 Herron, T. G., United States, 279.
 Hertz, Dr., France, 406.
 Hewitt, Graily, England, 503, 785, 837, 849, 901, 904, 949.
 Hewson, Addinell, United States, 113.
 Hicks, Braxton, England, 497.
 Higginbottom, John, England, 191, 254.
 Higgins, W. H., England, 554.
 Hildebrandt, H., Germany, 929, 937.
 Hill, Berkeley, England, 579, 590, 602, 606, 621, 634.
 Hill, J. D., England, 580.
 Hill, W. S., United States, 505.
 Hilton, Mr., England, 722.
 Hinkle, Dr., United States, 206.
 Hinton, Mr., England, 717.
 Hippocrates, 412.
 Hirst, Barton Cook, United States, 833.
 Hoffman, Dr., Germany, 150, 361.
 Holden, J. S., England, 215.
 Holmes, Prof., United States, 791.
 Holmes, T., England, 149, 159, 174, 183, 189, 204, 206, 209, 216, 243, 247, 264, 271, 274, 382, 392, 645, 647, 695, 696.
 Holt, Joseph, United States, 1045.
 Hood, Dr., England, 176.
 Horner, Frederick, United States, 344.
 Hospital, U. of P., United States, 813.
 Howath, Dr., Germany, 38, 115.
 Howard, J. W., England, 290, 694.
 Howe, J. W., United States, 291, 547, 725.
 Hubbard, Dr., United States, 228.
 Hudson, J. Q. A., United States, 487.
 Huebner, Dr., Germany, 1085.
 Huefler, Dr., Germany, 627.
 Hueter, Dr., Germany, 196.
 Hugenschmidt, A., France, 326.
 Hull, A. E., United States, 474.
 Hunt, Thomas, England, 299, 413.
 Hunter, Mr., England, 166.
 Hunter, Charles, United States, 172.
 Hunter, E. H. W., United States, 795.
 Hurd, E. P., United States, 65.
 Huse, E. C., United States, 481.
 Hutchinson, J. H., United States, 284, 440.
 Hutchinson, Jonathan, England, 22, 98, 174, 654, 695, 696.
 Huter, Prof., 533.
 Hyatt, A. H., United States, 190.
 Hyderabad Commission, India, 24.
 Hygen, Dr., Germany, 726.
 Ignatieff, Dr., Russia, 220.
 Imray, John, West Indies, 144, 218.
 Isaac, Dr., Germany, 307.
 Jackson, E. H., United States, 725.
 Jackson, J. A., United States, 516.
 Jackson, Samuel, United States, 205.
 Jackson, W. R., United States, 219.
 Jacob, A. H., Ireland, 703.
 Jacobi, A., United States, 548, 767.
 Jacobi, Mary Putnam, United States, 366, 827.
 Jadasohn, Dr., 626.
 Jaksch, R. von, Austria, 212.
 James, Prosser, England, 677.
 Jenks, Edward W., United States, 1064.
 Jeannel, M., France, 352, 407.
 Jewett, Theodore, United States, 821.
 Jobert, Dr., France, 708.
 Johnson, George, England, 362, 433, 490.
 Joli, M., France, 237.
 Jones, D. W., United States, 52.
 Jones, G. S., United States, 895, 936.
 Jones, Handfield, England, 427.
 Jones, Joseph, United States, 199.
 Jones, Talfourd, England, 710.
 Jones, W. D., United States, 458.
 Jordan, Furneaux, England, 532, 735, 768.
 Jorissenna, Dr., Canada, 834.
 Jullien, Prof., France, 611.
 Justamond, Dr., England, 754.
 Kaezorowski, Dr. von, Germany, 197.
 Kafemann, Dr., Germany, 418.
 Kammerer, Joseph, United States, 863.
 Kaposi, Prof., Austria, 323, 624.
 Kassobudski, Dr., Russia, 467.
 Kaufmann, Prof., Germany, 149.
 Keating, W. V., United States, 897.
 Kelp, Dr., Germany, 510.
 Kelsey, Charles, United States, 477.
 Kempff, E. J., 476.

- Kenner, Dr., United States, 238.
 Kentish, Edward, England, 270.
 Kepses, Dr., Austria, 287.
 Kesteven, W. B., England, 41.
 Key, Aston, England, 648.
 Keyes, E. L., United States, 489, 515, 529,
 541, 552, 561, 575, 587, 593, 594, 599, 615,
 629, 633.
 Kichensky, Dr., Russia, 145.
 Kijanizyn, J., Russia, 957.
 Kimberlin, J. J., United States, 564.
 King, E. W., United States, 1006.
 Kirk, Rôbert, Scotland, 118.
 Kirkland, Thomas, England, 104, 255.
 Kirkpatrick, F., Ireland, 639.
 Kisch, E. H., Germany, 865.
 Kleberg, Dr., 482.
 Klein, Dr., Germany, 187.
 Klotz, Herman, United States, 223.
 Knaggs, H. G., England, 553.
 Knecht, Dr., Germany, 223.
 Knott, I. J., England, 390.
 Koch, Robert, Germany, 88, 329, 759.
 Koch, Dr., Germany, 188.
 Koeberler, Prof., Germany, 792, 877.
 Koebner, H., Germany, 514, 613.
 Koehler, Dr., Germany, 524.
 Koenig, Dr., Germany, 47.
 Koester, Dr., Germany, 577, 604.
 Kohler, Dr., Germany, 47.
 Kohn, M., Germany, 343.
 Kôtschau, Prof., Germany, 859.
 Kraus, Bernard, Austria, 677.
 Kuhn, M., United States, 745.
 Kussmaul, Prof., Germany, 440.
 Kyle, J. A., United States, 273.
 Labat, F., France, 533.
 Lacharière, Dr. de, France, 724.
 Lane, Ernest, England, 585.
 Lane, John William, England, 1079.
 Lanenstein, Dr., Germany, 43.
 Laney, Baron, France, 225.
 Lang, Dr., 625.
 Langenbeck, Prof., Germany, 375, 381, 483,
 597, 653, 743.
 Langlebert, Dr., France, 635.
 Laplace, Ernest, United States, 88.
 Lashkewith, Dr., 146.
 Lassar, Prof., Germany, 310.
 Laurence, Z., England, 711.
 Lavignot, M., France, 696.
 Lawrie, James, Scotland, 99.
 Lawson, George, England, 691, 699, 703.
 Leasure, Dr., United States, 448.
 Leavitt, Dr., England, 196.
 Lebert, Prof., 597.
 Leblond, A., France, 865, 869, 912.
 Le de Bordier, Dr., France, 1086.
 Ledeschi, Dr., 756.
 Leishman, William, Scotland, 1086.
 Leitner, C. B., United States, 120.
 Leloir, Prof., France, 325, 613.
 Lemaire, Dr., France, 105.
 Letamendi, Dr., France, 42.
 Leu, Dr., Germany, 237.
 Levings, A. H., United States, 640.
 Lewis, Bransford, England, 585.
 Lewis, M. J., United States, 277.
 Lezius, Dr., Russia, 626.
 Liebrich, Prof., Germany, 288.
 Liegeois, M., France, 622.
 Liggett, Dr., England, 145.
 Lima, Dr., 356.
 Lindebom, Dr., Germany, 626.
 Linon, Dr., France, 395.
 Lisfranc, Dr., France, 822.
 Lister, Joseph, England, 74, 79, 80, 91, 93,
 116, 126, 389.
 Liston, Dr., England, 193, 500.
 Liveing, R., England, 301, 304, 348, 350.
 Loeffler, Dr., Germany, 130.
 Loney, Dr., United States, 409.
 Long, W. H., United States, 1009.
 Lothrop, Charles H., United States, 637.
 Lowenthal, Dr., Germany, 626.
 Luc, M., France, 581.
 Lucae, A., Germany, 723.
 Lucas, John C., United States, 223.
 Lucas, Mr., England, 260.
 Lücke, A., Germany, 729.
 Lustgarten, Dr., Germany, 321.
 Lusk, William F., United States, 999, 1007.
 Lutand, Dr., France, 577, 602.
 Lydston, Frank, United States, 326.
 Lynk, John, United States, 17.
 Lyons, Dr., United States, 892.
 Maack, Dr. von, Germany, 412.
 Macaulay, Dr., England, 214.
 Macewen, F. A., England, 381.
 Macdonald, Angus, Scotland, 964.
 Mackay, Dr., England, 381.
 Mackenzie, A. C., United States, 122.
 Mackenzie, Morell, England, 429, 430, 439,
 680, 701, 730, 734.
 Maclean, W. C., England, 282.
 Macleod, G. H. B., Scotland, 23, 456, 657.
 MacNamara, M. C., England, 695, 701.
 MacPhail, J. R., 30.
 McBride, Alexander, United States, 628.
 McBride, Thomas, United States, 667.
 McGuire, Hunter, United States, 127, 1069.
 McGinnis, E. L. H., United States, 816.
 McLennan, John, Scotland, 257.
 McReddie, G. D., England, 144.
 McSherry, Richard, United States, 543.
 Madden, Dr., United States, 858.
 Magendie, Prof., France, 513.
 Magnis-Lahens, M., France, 104.
 Maissonneuve, M., France, 747, 916, 1076.
 Malassez, Dr., France, 304.
 Mallez, Dr., France, 449, 563.
 Mandelbaum, Dr., 261.
 Manec, P. I., France, 650.
 Manley, Horace, United States, 147.
 Mann, E. C., United States, 674.
 Mapother, E. D., Ireland, 172, 178.
 Marchand, Charles, United States, 103.
 Maresti, Dr., 220.

- Marsden, Dr., England, 745.
 Marsh, Howard, England, 228.
 Marsh, Madison, United States, 240.
 Marshall, Mr., England, 261, 388, 702.
 Martel, Prof., France, 593.
 Martin, Edward, United States, 251, 396, 571, 586.
 Martin, Christopher, England, 934.
 Martin, H. A., United States, 252, 263.
 Martin, Mr., England, 160.
 Mason, E., United States, 478.
 Matthews, J. M., United States, 473.
 Maunder, C. F., England, 379.
 Maurange, M., 237.
 Mauriac, Dr., France, 634, 679.
 Maury, F. F., United States, 208, 581, 606, 614, 630.
 Mauther, Prof., Germany, 694.
 Maxwell, Dr., India, 145.
 Mayer, Dr., France, 219, 510.
 Mayer, E. R., United States, 395, 474, 476, 531, 546, 560, 570.
 Mayland, Dr., Scotland, 268.
 Mayrhofer, Prof., Austria, 905, 908.
 Meadows, Alfred, England, 910, 973.
 Meigs, J. F., United States, 413.
 Melchior, Robert, United States, 632.
 Meniere, M., France, 720.
 Mering, Dr., Germany, 36.
 Merrill, A. P., United States, 282.
 Merson, James, England, 403.
 Metzger, Dr., Germany, 650.
 Meyr, Ignatz, Austria, 776.
 Miall, Philip, England, 32, 160.
 Michel, Dr., France, 750, 756.
 Mikulicz, Prof., Russia, 641.
 Miller, A. G., England, 680.
 Miller, C. B., United States, 550.
 Miller, Hugh, Scotland, 1042.
 Milton, J. L., England, 619.
 Miner, J. F., United States, 394.
 Minnich, Dr., Italy, 104.
 Misrachi, Dr., France, 997.
 Mitchell, S., United States, 42.
 Mitchell, S. Weir, United States, 150, 167.
 Mitra, Dr., Persia, 329.
 Mbley, J. B., United States, 251.
 Mollière, Dr., France, 393.
 Moncorvo, M., Brazil, 161, 162, 163, 625.
 Monette, G. N., United States, 491.
 Monière, Dr., France, 559.
 Monni, Dr., France, 817.
 Monsel, Dr., France, 160.
 Moore, C. H., England, 554, 746.
 Moore, E. M., United States, 202.
 Moore, S. W., England, 117.
 Morari, Dr., Spain, 446.
 Morehead, Mr., England, 283.
 Morgan, Campbell de, England, 123, 193, 197, 747.
 Morgan, Prof., Ireland, 569.
 Moritz, Dr., Germany, 650.
 Morotti, Dr., Italy, 513.
 Morris, Henry, England, 463, 527.
 Morris, John, United States, 264.
 Morrow, P. A., United States, 287.
 Morton, James, Scotland, 659.
 Morton, T. G., United States, 275.
 Morton, T. S. K., United States, 103.
 Mosetig-Moorhof, Dr., Germany, 492, 731.
 Moss, Mr., England, 146.
 Mott, Valentine, United States, 222, 290.
 Mulheron, Dr., United States, 814.
 Mulreany, Joseph, England, 927.
 Mundé, Paul F., United States, 861.
 Murphy, Dr., India, 284.
 Murray, Sir J., England, 419.
 Nancrede, C. B., United States, 655.
 Napheys, G. H., United States, 963.
 Neffel, W. B., United States, 758.
 Negrier, Prof., 768.
 Neilson, T. R., United States, 585.
 Nelaton, Prof., France, 446.
 Neligan, Dr., 298.
 Netter, A., France, 201.
 Neudörfer, Dr., Germany, 368.
 Newman, T. J., United States, 786.
 Nichols, J. E., United States, 750.
 Nickerson, L. H. A., United States, 39.
 Niemeyer, Felix von, 411, 412, 489, 566, 597.
 Nissen, Dr., Germany, 181.
 Nissley, S. R., United States, 39.
 Nolte, Dr., Germany, 188.
 Norton, A. T., England, 431, 732.
 Nüsbaum, Dr. von, Germany, 196, 198.
 Nunn, T. W., England, 501.
 Oberländer, Dr., Germany, 514.
 Oechini, Dr., Italy, 23.
 Oehern, Dr., Germany, 1086.
 Oesterlen, F., Germany, 733.
 O'Hara, M., United States, 1089.
 Ohleyer, Dr., Germany, 255.
 Olshausen, Robert, Germany, 784, 794.
 O'Neill, A. A., United States, 543.
 Oppenheimer, L. S., United States, 956.
 Oppolzer, Prof., Austria, 416, 469.
 Oré, G., France, 19.
 Orosi, Dr., Italy, 159.
 Ortille, Dr., France, 177.
 Ortiz, Perez, Spain, 296.
 Ostermeyer, Dr., Germany, 267.
 Otis, F. W., United States, 588.
 Paccianti, Prof., Italy, 147.
 Packard, F. A., United States, 275.
 Packard, J. H., United States, 206, 485.
 Pagenstecher, Dr., Germany, 684.
 Paget, Sir James, England, 212, 244, 257, 260, 377, 537, 549, 621, 741, 757.
 Pagliari, Prof., Italy, 160.
 Pajot, Prof., France, 864.
 Pallen, Montrose A., United States, 937.
 Panas, Prof., France, 409, 838.
 Pancoast, Joseph, United States, 115, 160, 419, 453.
 Paneau, M., France, 157.
 Panesi, Carlo, Italy, 158.
 Pareta, Dr., Italy, 256.

- Parke, Dr., England, 283.
 Parker, F. L., United States, 683.
 Parker, Langston, England, 584.
 Parrish, William H., United States, 1046.
 Parvin, Theophilus, United States, 968.
 Pasteur, Prof., France, 106, 140.
 Paul, Constantine, France, 662.
 Paulsen, Dr., Germany, 723.
 Pauly, J., Germany, 638.
 Payne, E., England, 755.
 Payne, J. F., England, 308.
 Peabody, A. H., United States, 425.
 Pearson, Mr., England, 169.
 Peaslee, E. R., United States, 795.
 Feaslee, R. L., United States, 23.
 Penn'a. State Board of Health, 277.
 Percy, S. R., United States, 247, 679.
 Perier, Prof., France, 532.
 Peters, J. C., United States, 279, 412.
 Petresco, Dr., Italy, 188.
 Petrini, Dr., 624.
 Peyraud, M., France, 755.
 Pflueger, Dr., Switzerland, 710.
 Phelps, A. M., United States, 365.
 Pick, Carl, Austria, 305, 708.
 Pietrasanta, Dr., France, 122.
 Pietrowski, Dr., Russia, 46.
 Piffard, Henry G., United States, 307, 324, 328, 336, 340, 346, 387, 392, 605, 933.
 Pine, Alcunda, United States, 815.
 Planat, Dr., France, 246, 709.
 Playfair, W. S., England, 973, 994, 996, 1010, 1032, 1037, 1044, 1051, 1061, 1067, 1086.
 Polli, Prof., Italy, 122, 145, 194.
 Pollock, Mr., England, 639.
 Pope, B. A., United States, 693.
 Porta, Prof., Italy, 395.
 Porter, D., United States, 682.
 Post, Sarah E., United States, 309.
 Powers, J. L., United States, 1070.
 Price, Joseph, United States, 783.
 Prichard, Prof., 598.
 Primus, Dr., Germany, 681.
 Profeta, Prof., Italy, 209.
 Prout, Dr., England, 505, 525.
 Purdon, H. S., England, 302, 351.
 Purple, S. S., United States, 1090.
 Quinquaud, Dr., France, 357, 625.
 Rabuteau, M., France, 30.
 Ræther, Prof., Germany, 972.
 Ranke, Dr., Germany, 122.
 Ranking, G. S. A., United States, 841.
 Ranking, John A., United States, 1014.
 Reamy, Prof., United States, 799.
 Recamier, M., France, 742.
 Reclus, Prof., France, 42, 268.
 Reece, Dr., France, 603.
 Reed, C. A. L., United States, 791.
 Reeder, Dr., United States, 680.
 Regnaud, Dr., France, 34.
 Reichert, Edward, 150.
 Reid, W. L., Scotland, 1003.
 Renaudin, Dr., France, 420.
 Renzi, Edi, Italy, 218.
 Reunart, Dr., Germany, 462.
 Reynolds, Russell, England, 192.
 Rheims, Dr., France, 290.
 Rhett, Benjamin, United States, 742.
 Rice, Charles, United States, 271.
 Richardson, A., England, 556.
 Richardson, B. W., England, 37, 39, 42, 158, 176, 274, 384, 391.
 Richardson, T. G., United States, 272.
 Ricord, Dr., France, 498, 554, 587, 598, 601, 606, 608, 614, 634.
 Riddell, S. S., United States, 40.
 Ringer, Sidney, England, 25, 64, 69, 162, 233, 240, 246, 263, 311, 392, 413, 432, 433, 679, 711, 723, 766, 809, 842.
 Rivington, Dr., England, 462.
 Robert, T. A., England, 706.
 Roberts, S. H., United States, 433, 667.
 Robinson, Beverly, United States, 433, 667.
 Rochard, Dr., France, 467.
 Rockwell, A. R., United States, 534, 541, 567, 715, 757.
 Roe, A. J., United States, 472.
 Rogers, A. W., United States, 504, 596.
 Rollet, Dr., France, 479, 634.
 Roosa, D. B. St. J., United States, 661.
 Roseburgh, A. M., Canada, 688.
 Rosenbach, Dr., Germany, 188.
 Rosenberg, Dr., United States, 261.
 Rosenthal, Prof., Germany, 350, 811.
 Ross, Dr., France, 631.
 Roth, Theodor, Germany, 237.
 Rotter, Emil, 104.
 Rottenberg, Prof., Germany, 267.
 Roubaud, M., France, 525.
 Routh, C. H. F., England, 298, 755, 1081.
 Rubenstein, Dr., Germany, 598.
 Ruhle, Prof., Germany, 753.
 Rumbold, T. F., United States, 428, 682.
 Ruppner, A., United States, 224, 428, 429.
 Ruschenberger, W. S. W., United States, 629.
 Rush, Dr., United States, 222.
 Saalfeld, Dr., Germany, 320, 330.
 Saenger, Prof., Germany, 956.
 Saint Germain, Dr., France, 534.
 Sajous, C. E., United States, 664.
 Sale, E. P., United States, 866.
 Sansom, A. E., England, 19, 37.
 Sauer, M., Germany, 36.
 Saundby, R., England, 465.
 Sauvages, Dr., France, 547.
 Savignac, M. de, France, 241, 679.
 Savory, W. S., England, 176.
 Saxe, A. W., United States, 951.
 Sayre, L., United States, 658.
 Schäffer, E. A., England, 26.
 Schede, Max, Germany, 126, 449.
 Schiff, Prof., Switzerland, 25, 754.
 Schmid, Prof., Germany, 90.
 Schmidt, Dr., Germany, 143.
 Schneider, E., Belgium, 246.
 Schönefeldt, Dr., Germany, 680, 738.

- Schroeder, Karl, Germany, 860, 931, 936, 969, 1031.
 Schröter, Prof., Germany, 47.
 Schuster, Dr., Belgium, 323.
 Schuyler, C. C., United States, 422.
 Schwalbe, Dr., Germany, 756.
 Schwartz, Dr., France, 26.
 Scott, M. W., United States, 219.
 Scovell, William, England, 761.
 Scudder, J., United States, 546.
 Seely, W. W., United States, 721.
 Selenieff, Dr., Russia, 627.
 Semmola, Prof., Italy, 457.
 Semple, G. W., United States, 473, 490.
 Senator, Prof., Germany, 438.
 Senn, Nicholas, United States, 443.
 Shannon, A., 732.
 Shinkwin, Dr., Ireland, 143.
 Silberminz, Dr., Germany, 581.
 Simmons, D. B., Japan, 208.
 Simpson, A. R., Scotland, 779, 959.
 Simpson, Sir J. Y., Scotland, 29, 708, 881, 1038, 1076.
 Sims, Marion, United States, 838.
 Skene, A. J. C., United States, 788, 874, 924, 946, 950, 954, 969, 1038.
 Skey, M., England, 272.
 Skutsch, Prof., Austria, 858.
 Slaviansky, Dr., Russia, 783.
 Sloan, Samuel, Scotland, 1087.
 Smart, W. N., United States, 37.
 Smet, Dr. de, Belgium, 387, 391.
 Smith, A., England, 356.
 Smith, A. H., United States, 38, 371, 504, 1008.
 Smith, A. L., United States, 887, 1052.
 Smith, C. A., United States, 351.
 Smith, H. H., United States, 754.
 Smith, J. Lewis, United States, 322, 632, 763.
 Smith, N. R., United States, 49, 142, 466.
 Smith, Protheroe, England, 18.
 Smith, Q. C., United States, 123, 1069, 1070, 1089.
 Snow, R. L., England, 21, 273.
 Sobrier, Dr., France, 675.
 Socin, Dr., France, 102.
 Somerin, Dr. von, 329.
 Soulez, Dr., France, 96.
 Speir, S. F., United States, 376, 381.
 Spencer, Prof., Scotland, 95.
 Spender, J. K., England, 246, 556.
 Spessa, Dr., Italy, 46.
 Spiegelberg, Otto, Germany, 1034.
 Squibb, E. R., United States, 118, 267.
 Squire, B., England, 355, 388.
 Stafford, R. A., England, 514.
 Stampinatti, G., Italy, 670.
 Staples, G. M., United States, 1034.
 Starke, G. A., United States, 603.
 Startin, Mr., England, 354.
 Steel, A., United States, 765.
 Steele, Dr., United States, 381.
 Stern, Dr., 336.
 Stillé, A., United States, 226, 412, 413.
 Stilling, Dr., Germany, 102.
 Stoerk, K., Austria, 740.
 Stone, A. J., United States, 29.
 Storer, Horatio R., United States, 936.
 Stradfelt, Prof., Holland, 1001.
 Strohmeier, Prof., Germany, 483.
 Stucky, J. H., United States, 430.
 Suckling, R., England, 465.
 Sussdorf, G. E., United States, 880.
 Swanzy, H. R., England, 706.
 Swayne, I. G., England, 970.
 Swayze, George H., United States, 568.
 Sweeny, J. P., England, 377.
 Swiecicki, Dr., Russia, 1034.
 Syme, J., Scotland, 108, 254, 289, 428, 532, 640, 648, 651, 730, 736.
 Symonds, Dr., England, 411.
 Szumarr, Leon, Norway, 268.
 Tait, Lawson, England, 85, 787, 818, 912, 917, 927.
 Talamon, Prof., France, 188.
 Tanner, T. H., England, 118, 185, 211, 384, 386, 422, 504, 536, 621, 628, 810.
 Tariote, A., France, 459.
 Tarnier, M., France, 479, 974.
 Tauszky, Rudolph, United States, 839, 939.
 Taylor, C. B., England, 33.
 Taylor, I. E., United States, 1006.
 Taylor, R. W., United States, 320, 323, 336, 337, 346.
 Terrillon, Dr., France, 834.
 Terry, W. A., United States, 153.
 Thain, L., England, 426.
 Theobald, S., United States, 707.
 Thierry, Prof., France, 165.
 Thiersch, Prof., Germany, 93, 94.
 Thiroloix, Dr., France, 627.
 Thomas, Isaiah, United States, 245.
 Thomas, T. Gaillard, United States, 627, 796, 803, 817, 835, 859, 861, 874, 875, 889, 901, 903, 1050.
 Thomas, Mr., England, 389.
 Thompson, Sir Henry, England, 497, 515, 519, 579, 736.
 Thompson, J. A., England, 547.
 Thornton, J. H., India, 448.
 Thudichum, Dr., England, 681.
 Tilt, Edward J., England, 785, 804, 809, 810, 811, 836, 862, 881, 916, 941, 946, 950.
 Tizzoni, Dr., Italy, 221.
 Toland, H. H., United States, 545, 562, 695, 763.
 Tomlinson, Dr., India, 284.
 Travers, Mr., England, 176.
 Treves, Frederick, England, 482.
 Trideau, Dr., France, 433.
 Tripiet, Dr., France, 29.
 Triquet, E. H., France, 718.
 Trousseau, A., France, 433, 675.
 Tucker, D. H., United States, 593.
 Tufnell, Joliffe, England, 375.
 Tully, William, United States, 546.
 Tunstall, E. L., United States, 505.
 Turazzo, Prof., Italy, 971.

- Turnbull, L., United States, 30, 697, 702, 719, 722, 909.
 Tydings, O., United States, 345.
 Tyndall, Prof., England, 106.
- Ultzmann, Dr., Austria, 535, 566.
 Underwood, Dr., England, 411.
 Unna, Prof., Austria, 312, 328, 330.
 Unzicker, J. S., United States, 475.
 Uterhart, Dr., 23.
 Vallette, A. D., France, 393.
 Van Buren, Dr., United States, 478, 489, 515, 529, 541, 552, 561, 575, 587.
 Vance, R. A., United States, 475.
 Vanderpoel, Edward, United States, 222.
 Van de Warker, Ely, United States, 904.
 Vanzetti, Tito, Italy, 51.
 Varian, William, United States, 501.
 Veiel, Dr. von, Germany, 239, 351.
 Velpeau, Prof., France, 195, 480, 602, 647, 660.
 Venables, Dr., England, 519.
 Vergeley, Prof., France, 23.
 Verneuil, M., France, 214, 229, 237, 246, 468.
 Vezin, Dr., Germany, 110.
 Vidal, Dr., France, 258, 418, 603, 685.
 Villate, M., France, 639.
 Villejean, Dr., France, 34.
 Virchow, Rudolph, Germany, 727.
 Vogt, Dr., Germany, 394.
 Vollert, Dr., Germany, 627.
 Vos, A. de, Belgium, 600.
- Waakes, Dr., England, 721.
 Wachsmuth, Dr., Germany, 37.
 Waddy, H. E., England, 99.
 Wagner, Dr., Germany, 534.
 Wahltsch, A., England, 241.
 Walker, J. W., United States, 894.
 Waller, Dr., India, 279.
 Ward, Dr., England, 375.
 Waring, E. J., England, 21, 157.
 Warren, Edward, United States, 557.
 Warren, J. M., United States, 142, 167, 453.
 Warren, J. S., 954.
 Washington, B. H., United States, 444.
 Waterman, L. D., United States, 555.
 Waters, A. T. H., England, 375.
 Watkins, A. F., United States, 1000.
 Watkins, W. H., United States, 179.
 Watson, B. A., United States, 146.
 Watson, Eben, England, 224.
 Watson, P. H., Scotland, 97.
 Watson, Sir Thomas, England, 193, 392, 413.
 Watson, W. Spencer, 320, 670.
 Weber, A., Germany, 709.
 Weber, H., Germany, 662.
 Weber, Prof. B. von, Austria, 1002.
 Webster, J. C., Scotland, 937.
 Wecker, Dr., Germany, 710.
- Weir, Prof., United States, 456.
 Weissflog, E., Germany, 611.
 Weisse, F. D., United States, 451.
 Welander, Dr., 626.
 Wells, J. S., England, 685.
 Wells, T. Spencer, England, 33, 225, 793.
 Wenderroth, Dr., Germany, 188.
 Wenzel, H. P., United States, 551.
 West, Dr., England, 413.
 Wetzlar, Dr., Germany, 675, 676.
 Wheeler, L., United States, 712.
 White, J. C., United States, 343.
 White, J. P., United States, 862, 878.
 White, J. William, United States, 84, 573, 584, 606, 613.
 White, W. L., England, 195.
 Whitehill, Dr., United States, 282.
 Whitla, Dr., United States, 420, 509.
 Whittaker, J. T., United States, 741.
 Wickham, Dr., France, 612.
 Wilde, Dr., 737.
 Wile, Dr., United States, 229.
 Wilkens, W. W., United States, 863.
 Wilkinson, Dr., United States, 242.
 Will, J. C. O., England, 587.
 Williams, C. I., United States, 267.
 Williams, John, England, 801, 825.
 Williams, William, 367.
 Williams, Wynne, England, 742.
 Wilson, Elwood, United States, 830.
 Wilson, Erasmus, England, 194, 207, 313, 332, 337, 350.
 Winawarter, A., 744.
 Winckel, F., Germany, 947, 1087.
 Winternitz, Dr., Germany, 567.
 Wiss, E., Germany, 116.
 Wolfe, J. R., Scotland, 686.
 Wölfer, Dr., Germany, 197.
 Wolff, Germany, 101, 120.
 Wood, George B., United States, 568, 768.
 Wood, H. C., 35, 52, 64, 435.
 Wood, J. R., United States, 32, 108, 326.
 Wood, John, England, 210.
 Woodbury, H. E., United States, 636, 824.
 Woodruff, J. S., United States, 824.
 Wright, Dr., United States, 426, 435.
 Wylie, T. N., United States, 240.
 Wyman, H. C., United States, 169.
 Wyrzykowski, Dr., Russia, 141.
- Yandell, D. W., United States, 345, 658, 690.
 Youatt, Mr., England, 142.
 Young, David, Italy, 474.
- Zanfai, Prof., Hungary, 725.
 Zebenden, Dr., Germany, 143.
 Zeisse, Dr., Germany, 389, 565.
 Zeissing, Dr., 626.
 Zuelzer, Wilhelm, Germany, 191.

II. INDEX OF REMEDIES AND REMEDIAL MEASURES.

- Abdominal section, 1059.
 A. C. E. mixture, 36.
 Acacia, 272, 600.
 Acetum, 129, 177, 338, 600.
 Acids, 160, 397, 524, 762.
 mineral, 841.
 Acetic acid, 37, 68, 172, 289, 667, 734, 741,
 752, 870, 877, 896.
 glacial, 933.
 Aconitine, 942, 1070.
 Aconitum, 52, 55, 64, 161, 169, 193, 222, 369,
 377, 403, 414, 432, 504, 668, 722, 809, 980,
 1035, 1038, 1047, 1067.
 Acta Racemosa, 1077.
 Adepis benzoatum, 119.
 Adeps, 105, 194.
 Agaric, 161, 1078, 1079.
 Alcohol, 17, 36, 38, 56, 57, 113, 115, 130, 151,
 161, 177, 212, 222, 235, 260, 289, 394, 533,
 545, 737, 741, 752, 765, 1000.
 Alkalies, 489, 499, 518, 762, 765, 919.
 Allium, 222.
 Alnus incana, 161.
 Aloes, 62, 115, 469, 801, 920, 974.
 Aloes and myrrh, pills of, 804, 805, 806, 809.
 Aloes and podophyllin, pills of, 804.
 Aloin, 809.
 Alumen, 71, 116, 130, 161, 235, 260, 272, 289,
 319, 380, 403, 411, 432, 472, 529, 531, 600,
 666, 668, 677, 691, 705, 723, 919, 840, 841,
 920, 1079.
 Alum curd, 706.
 Aluminii acetat, 60, 677.
 chloridum, 116, 677.
 et potassii sulphat, 289.
 nitrat, 942.
 Alum poultice, 71.
 Alveloz, 753.
 Ammonia, 161, 175, 314, 384, 809.
 Ammonii acetat, 61, 64, 68, 805, 820.
 benzoat, 499, 524.
 bromidum, 505, 568, 841.
 carbonat, 59, 177, 181, 193, 205,
 350, 384, 753.
 chloridum, 69, 127, 130, 205, 513,
 524, 650, 665, 666, 678, 729, 737,
 753, 786, 789, 795, 809, 826, 895,
 920, 942, 1058, 1070.
 citrat, 505.
 hydrochlorat, 57, 722.
 hypophosphit, 432.
 iodidum, 765.
 nitrit, 142, 145, 706.
 sulphichthyolat, 577.
 et potassii tartarat, 64, 151.
 Amyl nitrit, 142, 145, 225, 706, 827, 1012,
 1028.
 Amyli pulvis, 105.
 Anacardium, 329.
 Anæsthesia, 17, 47, 173, 443.
 Anæsthetic combinations, 36.
 Anæsthetics, 775.
 Anhydrous dressing of wounds, 112.
 Annidaline, 102, 116.
 Antifebrin, 161.
 Antimony, 172, 369, 557.
 Antimonial plaster, 389.
 Antimonii et potassii tartarat, 54, 216, 222, 432.
 Antipyrin, 161, 185, 277, 600, 788.
 Antiseptin, 103, 116.
 Antiseptics in skin diseases, 296.
 Antiseptic dressings, 77, 214.
 adhesive plaster, 82.
 gauze, 82, 84.
 lac plaster, 82.
 Apiol, 809, 817, 827.
 Apomorphine, 284.
 Aqua, 524, 723.
 ammoniat, 314.
 bulliat, 200, 208.
 chlorin, 116.
 picis, 205, 246, 678, 765.
 Arbor Vitæ, 933.
 Argenti nitrat, 58, 161, 191, 207, 235, 243,
 260, 272, 319, 411, 418, 472, 480,
 492, 494, 499, 530, 571, 595, 600,
 650, 665, 674, 678, 688, 702, 706,
 723, 737, 809, 854, 867, 868, 869,
 877, 920, 932, 942, 948, 955, 1084,
 1088.
 oxidum, 841.
 Aristol, 102, 116, 260, 331.
 Arnica, 69, 127, 130, 238, 404, 553, 702, 706.
 Arnott's freezing mixture, 45.
 Arsenic, 151, 241, 292, 297, 307, 311, 337,
 340, 357, 432, 549, 706, 737, 741, 743, 766,
 788, 827, 841, 933, 977, 980.
 Arsenious acid, 404.
 Artemisia, 809.
 Asafoetida, 971.
 Aseptic surgery, 85, 87.
 Asiatic pill, 292.
 Aspiration, 444, 457, 796.
 Astringent lotions, 60.
 Atropinæ sulphat, 26, 161, 171, 173, 177, 222,
 456, 490, 516, 568, 596, 688, 701, 706, 723,
 786, 789, 932, 1012, 1079.
 Atomizers, 663.
 Auri chloridum, 545.
 et sodii chloridum, 545.
 Aurum in scrofula, 766.
 Balneo-therapy, 776.
 Balsam, Friar's, 117.
 Balsamum copaibæ, 340.
 Peruvianum, 101, 116, 235, 260,
 289, 330, 346, 943, 1085, 1088.
 tolutanum, 116.

- Bandaging, 713, 1069.
 Baptisia tinctoria, 152, 205.
 Bari chloridum, 381, 568, 766.
 Bassorin, 365.
 Baths, 145, 147, 172, 225, 444, 525.
 sulphuro alkaline, 941.
 sit, 785, 787, 788, 801, 806, 813, 1014.
 Belladonna, 65, 145, 177, 193, 222, 232, 246,
 345, 401, 427, 433, 451, 456,
 468, 472, 480, 496, 506, 510,
 515, 524, 545, 554, 565, 601,
 700, 707, 728, 737, 789, 809,
 827, 867, 980, 1067, 1070.
 liniment of, 785.
 Benzene, 441.
 Benzoic acid, 83, 101, 494, 499, 510, 946, 991,
 1035.
 Benzoin, 116, 187, 289, 403, 666, 1037.
 compound tincture of, 1088.
 tincture of, 1087.
 Berberia, 841.
 Bestuscheff's mixture, 192.
 Bibron's antidote, 151.
 Bismuth phosphate, 980.
 subiodide, 101.
 subnitrate, 260, 272, 308, 327, 472,
 574, 582, 601, 678, 707,
 878, 921, 980, 1088.
 Blisters, 59, 175, 238, 284, 551, 669, 694, 714,
 730, 784, 787, 789, 867, 1049, 1058.
 Blood-letting, 128, 175, 669, 821, 977, 990,
 1014, 1034, 1036, 1049.
 Boletus, 1082.
 Bonwill's anæsthetic method, 18.
 Boracite, 524.
 Boracic acid, 83, 95, 101, 105, 117, 239, 246,
 260, 272, 309, 352, 494, 499, 600, 666, 707,
 790.
 Borax, 290, 812, 829, 841, 922.
 Bougies, 563.
 Brassica, 290.
 Bread poultice, 70.
 Bromine, 194, 205, 207, 222, 260, 344, 678,
 737, 741, 753, 766, 789, 827.
 Bryonia, 117, 130.
 Buchu, 499, 506.
 Burnett's disinfectant, 123.
 Cadini oleum, 260, 349.
 Cadmium, 601, 737.
 Cæsarian section, 1034.
 Caffeine, 26, 178.
 Calamine, 317.
 Calcii carbonas, 105.
 chloridum, 737, 766, 895.
 iodidum, 117, 766.
 permanganas, 917.
 phosphas precipitatus, 767.
 sulphidum, 240, 311, 766.
 Calci glyceritum, 272.
 Calendula officinalis, 117.
 Calx chlorinata, 194, 411.
 Camphora, 59, 69, 71, 101, 117, 127, 130, 144,
 194, 235, 246, 290, 317, 403, 486, 506, 531,
 548, 568, 601, 678, 789, 827, 909, 943, 1021.
 Camphoric acid, 500.
 Campho-phenique, 97, 246.
 Cannabis indica, 145, 218, 223, 325, 506, 545,
 785, 819, 827, 842, 897, 909, 974, 1012,
 1027, 1080.
 Canquoin's paste, 634.
 Cantharides, 226, 289, 312, 500, 506, 545,
 587, 802, 803, 809, 919, 975.
 Capsicum, 69, 130, 290, 312, 402, 418, 433,
 565, 568, 1027.
 Carbolated camphor, 96.
 Carbolic acid, 38, 71, 76, 95, 105, 117, 182,
 188, 194, 205, 210, 225, 229,
 236, 260, 272, 290, 307, 323,
 345, 354, 410, 426, 432, 442,
 472, 490, 500, 533, 574, 596,
 601, 638, 665, 666, 670, 672,
 678, 707, 723, 737, 741, 753,
 856, 866, 870, 877, 932.
 poultice, 71.
 Carbo-ligni, 71, 97, 104, 117, 205, 235, 260,
 272.
 Carbolized oil, 82.
 putty, 82.
 Carbon bisulphide, 39, 260, 741.
 tetrachloride, 18.
 Carbonic acid gas, 40, 506, 563, 568, 708, 753.
 Carbo-sulphuric paste, 208.
 Carron oil, 272, 479.
 Carrot poultice, 70.
 Cascara amara, 628.
 Cascarilla, 61, 62, 411.
 Cashew-nut oil, 329.
 Castoreum, 820.
 Castration, 551.
 Cathartics, 53.
 Catheterism, 607.
 Catechu, 433, 840, 842, 921, 1087.
 Caustic arrows, 747, 1076.
 Caustics, 142, 390, 871, 1076.
 Cauterization, 60, 163, 181, 198, 225, 433,
 560, 597, 651, 733, 871, 933.
 Ceratum, 289.
 Cerium, oxalate of, 980.
 Charcoal poultice, 71.
 Chaulmoogra oil, 329, 347.
 Chimaphila, 498.
 Chloral, 19, 40, 56, 97, 118, 144, 223, 261,
 337, 381, 395, 478, 486, 506, 510, 601, 678,
 708, 723, 753, 808, 870, 943, 957, 981, 991,
 996, 1000, 1012, 1021, 1033, 1035, 1070.
 Chloralamid, 381.
 Chlor-alcohol, 118.
 Chlorine, 118, 205, 261, 411.
 Chlorinated soda poultice, 71.
 Chloroform, 20, 36, 37, 102, 145, 177, 223,
 226, 284, 403, 594, 708, 753,
 943, 981, 994, 1000, 1012,
 1034, 1035.
 liniment of, 1062.
 Chromic acid, 150, 205, 667, 721, 753, 866,
 877, 933.
 Chrysarobin, 328, 340, 468.
 Chrysophanic acid, 355, 987.
 Cibotium Cunninghamii, 161.

- Cimicifuga*, 433, 545, 810, 823, 827, 842, 984,
1012, 1038.
Cinchona, 59, 61, 105, 185, 261, 403, 433.
Cinnamomum, 842.
Citric acid, 753.
Circumcision, 551.
Citrate of potassium, 55.
Clitoridebomy, 551, 910.
Coagulants, 390.
Coal tar, 104.
Cocaine, 41, 64, 272, 321, 331, 404, 477, 506,
666, 708, 724, 737.
Cocculus indicus, 334, 810, 828.
Codeine, 65, 828.
Coffee, 171, 173, 842.
Colchicum, 55, 223, 401, 428, 500, 506, 601,
828, 1080.
Cold, 51, 60, 65, 127, 136, 147, 163, 238, 276,
382, 414, 444, 467, 669, 713, 741, 847, 1028,
1036, 1058, 1071.
Collodion, 90, 106, 118, 161, 184, 187, 188,
194, 239, 272, 390, 477, 1089.
Collyria, 685, 714.
Columbo, 61.
Compression, 51, 127, 129, 569, 648, 1071.
Condurango, 741, 753.
Conium, 72, 223, 261, 473, 546, 568, 666, 694,
740, 767, 909, 1070.
Copaiba, 56, 495, 500, 506, 573, 601, 698, 708,
919.
Cosmoline, 708.
Coster's paste, 353.
Cotton dressings, 106, 125.
Counter irritation, 167, 175, 547, 607, 714.
Crayons, 864.
Creolin, 100, 118, 188, 195, 347, 577, 602.
Creosote, 118, 161, 174, 195, 206, 272, 290, 331,
336, 338, 401, 433, 473, 602, 754, 878, 943,
981.
Creta preparata, 82, 261, 273.
Crocus, 810, 828.
Croton chloral, 708.
Cubebs, 433, 473, 500, 573, 602, 919.
Cupping, 444, 669.
dry, 803, 806.
Cupri acetat, 314, 602.
nitras, 754.
sulphas, 161, 405, 411, 494, 587, 603,
666, 670, 678, 708, 724, 754, 862, 867,
878, 921.
Cuprum, 261.
Curare, 223.
Curettag, 791, 899.
Cydonia, 412.
Cyanide of zinc and mercury, 83.
Cypripedium, 823.

Damiana, 546.
Daturine, 708.
De Rheims plaster, 290.
Diet, 50, 73, 295, 487.
Digitalis, 55, 65, 161, 172, 173, 178, 360, 381,
507, 608, 724, 836, 839, 842, 897, 909, 991,
992, 1048.
Dilatation, 445.
Dilatation of cervix, 814, 815, 830, 908.
Dioscorea villosa, 546, 754.
Dioscoreine, 546.
Douches, 547, 563, 661.
Dover's powder, 802.
Drainage, 77, 125, 136.
Dressings of wounds, 77, 81, 98.
Dry dressing of wounds, 112.
Duboisine, 709.
Dulcamara, 568.

Earth dressing of wounds, 106, 113.
Eau de luce, 151.
Elastic bandage, 263.
Elastic ligature, 446, 480, 659.
Electricity, 274, 504, 507, 508, 513, 548, 563,
715, 791, 801, 804, 812, 816, 826, 829, 831,
892, 982, 1014, 1029, 1081.
Electrolysis, 390, 446, 534, 739, 744, 757, 796,
898.
Electric alarm, 559.
Embrocations, 289.
Emetics, 172, 762, 974.
Emmenagogues, 806.
Emplastr, 235.
Enemata, 172, 446, 456, 467, 790.
Ergot, 157, 162, 173, 374, 446, 473, 509, 512,
568, 668, 728, 738, 787, 802, 804, 810, 828,
842, 897, 919, 943, 966, 967, 974, 1006, 1012,
1027.
Ergotin, 491, 709, 787, 893.
Erigeron canadense, 157, 162, 603.
Errhines, 447.
Erythroxylon coca, 666.
Escharotics, dental, 401.
Eserine, 709.
Esmarch bandage, 44, 383.
Ether, 27, 42, 173, 178, 222, 451, 909, 981,
1000.
Ethidene dichloride, 30.
Ethyl bromide, 30.
chloride, 44.
Eucalyptus, 500, 1048.
Euphorbia prostrata, 152.

Faradic anæsthesia, 47.
Faradization, 1081, 1084.
Farina, 261.
Feculæ iodium, 261.
Fel bovinum, 432.
Fell's cancer salve, 749.
Ferri arsenias, 565.
bromidum, 193, 509, 767.
carbonas, 707.
chloridum, 56, 189, 193, 194, 207, 211,
246, 290, 307, 335, 381, 405, 423,
427, 474, 500, 510, 566, 602, 680,
730, 738.
iodidum, 208, 442, 510, 760, 767, 789.
pyrophosphas, 491.
salicylas, 118.
sulphas, 118, 189, 192, 194, 273, 311,
352, 395, 586, 602, 878, 1028.
persulphas, 178, 205, 470, 587, 654,
670.

- Ferri subsulphatis liquor, 178, 376.
 sulpho-carbolas, 211.
 tartras, 208.
 potassio-tartras, 207, 208, 610, 614.
 et ammonii citras, 767.
 Ferrum, 162, 549, 568, 668, 754, 761, 810, 828, 843, 867.
 Filter-paper, sterilized, 90.
 Fomentations, 67, 1084.
 hot, 57, 1084.
 Forced flexion in hemorrhage, 164.
 "Four Sulphates," the, 579.
 Freezing mixtures, 164.
 Friction, 60, 650, 651.
 abdominal, 1014.
 Fuchsin, 261.
 Fucus crispus, 70.
 Fuligo ligni, 273.

 Galbanum, 810.
 Galla, 162, 290, 474, 668, 919.
 Gallic acid, 376, 568, 836, 843.
 Galvanism, 177, 456, 739, 881, 898.
 Galvano-puncture, 377.
 Gastric juice, 141, 754.
 Gelsemium, 65, 316, 403, 507, 510, 524, 568, 710, 815, 926, 1012, 1018.
 Gentian, 61.
 Geranium maculatum, 412.
 Gilbert's syrup, 615.
 Ginger tea, 812.
 Glycerine, 93, 105, 119, 195, 235, 261, 289, 404, 434, 474, 710, 724.
 Glycerinum acidi tannici, 479, 580.
 amyli, 690.
 Glycerite of tannin, 479.
 Glyceroles, 865.
 Goa powder, 355.
 Gossypium, 828, 975, 1084.
 Goulard's extract, 57, 98, 99, 130, 320.
 Grape cure, 770.
 Grindelia robusta, 326, 710.
 Guaiacum, 401, 424, 434, 628, 802, 828.
 Gurjun oil, 329, 602.
 Gutta percha, 119, 273.
 Haarlem oil, 521.
 Hæmatoxylin, 119, 195.
 Hamamelis, 119, 162, 395, 401, 405, 474, 570, 668, 843.
 Heat, 51, 171, 173, 248, 279, 417, 447, 507, 648, 669, 696, 715, 734, 1072.
 Hemlock poultice, 72.
 Horse-hair, 77.
 Humulus, 495, 568.
 Hydrangea arborescens, 524.
 Hydrargyrum, 235, 385, 434, 710
 ammoniatum, 290, 332, 333.
 Hydrargyri chloridum corrosivum, 64, 77, 88, 102, 119, 182, 195, 228, 229, 247, 261, 308, 309, 323, 338, 343, 349, 412, 491, 500, 574, 603, 609, 710, 761, 767, 789, 943.
 chloridum mite, 64, 144, 247, 333, 343, 369, 474, 485, 613, 666, 710, 767, 810, 922, 944, 981, 1089.
 Hydrargyri bichloridum, 333.
 biniodidum, 102, 119.
 iodochloridum, 310, 312.
 nitras, 205, 313, 332, 353, 391, 610, 692.
 oleas, 233, 330, 356, 553, 629, 702, 710.
 oxidum rubrum, 688, 710.
 unguentum, 196, 603, 618, 699, 790, 944.
 (See Mercurials.)
 Hydrastis canadensis, 247, 416, 435, 531, 574, 603, 679, 755, 788, 832, 1089.
 Hydrastinine, 832.
 Hydrobromic acid, 721.
 Hydrochloric acid, 61, 88, 289, 405, 410.
 Hydrocyanic acid dilute, 174, 980, 986.
 Hydrogen peroxide, 103, 119, 184, 196, 229, 261, 331.
 Hydronaphthol, 101, 120.
 Hydropathic belts, 66.
 Hydroxylamine muriate, 340.
 Hyoscyamus, 61, 174, 178, 496, 503, 507, 710, 909, 981, 1021.
 Hypericum perforatum, 130.
 Hypnotism, 31, 1001.
 Hypodermic injections, 171, 177, 182, 624.
 Hypophosphites, 214.
 Hyposulphites, 214.

 Ice, 57, 163, 175, 435, 456, 525, 556, 647, 790, 932.
 Ice-poultice, 66.
 Ichthyol, 186, 196, 242, 290, 328, 416, 435, 604, 790.
 Incisions, crucial, 182.
 Infibulation, 552.
 Inflation in hernia, 447.
 Ingluvin, 981.
 Injections (enemata), 172, 458, 460.
 intra-uterine, 834, 861, 1004, 1021, 1024, 1049.
 vaginal, 787, 788, 823, 860, 912, 924, 983, 1014, 1058.
 Insufflation, 663, 866.
 Inversion in hernia, 448, 458.
 Iodide of starch poultice, 71.
 Iodine, 58, 120, 130, 149, 181, 183, 196, 205, 233, 235, 238, 241, 290, 313, 353, 393, 402, 423, 435, 481, 532, 546, 553, 593, 636, 658, 666, 679, 702, 724, 728, 729, 738, 755, 760, 761, 768, 789, 806, 810, 867, 878, 922, 935, 944, 981, 1070.
 injections of, 796.
 Iodoform, 45, 90, 100, 120, 188, 196, 207, 229, 233, 235, 247, 261, 273, 404, 468, 474, 480, 479, 489, 492, 500, 514, 564, 604, 666, 679, 711, 724, 731, 755, 810, 867, 878, 903, 922, 932, 944, 957, 1089.
 Iodoglycerine solution, 660.
 Iodol, 627.
 Iodotannic solution, 120, 393.

- Ipecacuanha, 54, 65, 152, 182, 843, 981,
1011, 1012, 1028.
- Irrigation of gun-shot wounds, 136.
vaginal, 913.
- Jaborandi, 146, 975, 991, 1035, 1084.
- Juglans regia, 768.
- Juniperi pyrolignei oleum, 319, 332, 338.
- Jute, salicylated, 134.
- Kaolin, 604.
- Kava kava, 604.
- Kentish ointment, 274.
- Kirkland's neutral ointment, 255.
- Krameria, 162, 289, 474, 478, 840, 844, 919,
932, 1090.
- Lac plaster, antiseptic, 82.
- Labarraque's solution, 265.
- Lactic acid, 205, 209, 500, 524.
- Lactopeptine, 981.
- Lactucarium, 493.
- Lafayette mixture, 573.
- Lanolin, 196, 305.
- Laparatomy, 790.
- Lappa, 768.
- Lavandula, 289.
- Ledoyen's disinfectant, 121.
- Leeches, 401, 451, 456, 715, 784, 785, 790, 806,
813, 983, 1049, 1059.
- Ligatures, 76, 164, 181.
- Liniments, 940.
- Linimentum sinapis comp., 544.
- Linseed meal poultice, 69, 71.
- Lint, styptic, 78.
- Liquor ammoniæ, 149, 172, 741.
calcis, 99, 104, 214, 272, 411, 531, 665,
723, 707, 921, 942.
picis alkalinus, 315.
potassæ, 741, 755, 770.
- Listerism, 80, 83.
- Lithii bromidum, 525.
- Lobelia inflata, 223, 1013.
- London paste, 429.
- Lotions, 68, 941.
- Lotio hydrargyri bichloridi, 357.
acidi carbolic, 357.
- Lugol's solution, 666, 760.
- Lupulin, 548, 566, 568, 910.
- Lycopodium, 490, 667.
- Lysol, 103, 120.
- Magnesia, 412, 474.
- Magnesiæ citras, 61.
sulphas, 52, 61, 290, 311, 401, 465,
844.
- Malt extract, 771.
- Manna, 474.
- Martin's tannin styptic, 160.
- Massage, 67, 170, 180, 262, 548, 650, 775,
790, 813, 867, 1029.
- Matico, 162, 546, 582, 837, 844, 922.
- Maury's ointment, 630.
- Mel, 403, 412.
- Menthol, 45, 325, 404.
- Mercurials, 52, 54, 64, 182, 238, 301, 678.
- Methyl blue, 46, 188.
- Methylene bichloride, 32, 775.
- Milk diet, 490, 992.
- Milk weed, 1083.
- Mineral waters, 757, 771.
- Mistletoe, 1009.
- Monochloroacetic acid, 717.
- Monse's solution, 160.
- Morphine, 46, 57, 172, 182, 225, 284, 497,
666, 701, 711, 786, 814, 1065.
- Musk, 63, 171.
- Mustard, 812, 829.
plasters, 807.
poultice, 72.
- Myristica, 162.
- Myrrh, 62, 104, 236, 403, 810.
- Naphthaline, 404.
- Naphthol, 406, 409.
- β -Naphthol, 262, 307.
- Narcotics, 167, 174, 178.
- Nauseants, 447.
- Neurectomy, 168.
- Neurotomy, 168.
- Nerve paste, 141.
- Nicotine, 225.
- Nitric acid, 61, 205, 208, 262, 411, 475, 478,
525, 591, 604, 609, 636, 738, 866.
- Nitro-muriatic acid, 490.
glycerine, 225.
- Nitrous oxide, 34, 1001.
- Nux vomica, 162, 225, 312, 503, 546, 981.
- Oakum, 116, 273.
- Odontalgics, 403.
- Oleum amygdalæ dulcis, 289.
cadini, 260, 349.
caryophylli, 402.
lini, 289.
menthæ, 273.
morruæ, 60, 292, 546, 761, 762, 768,
788, 1077, 1083.
olive, 97, 101, 120.
ricini, 93, 235, 475, 711.
sabinæ, 804, 806, 811, 845, 919, 974,
976.
theobromæ, 119.
tiglii, 313, 333, 391, 726, 785, 992.
- Open treatment of wounds, 108.
- Opium, 57, 65, 68, 144, 156, 173, 178, 206,
209, 219, 225, 262, 273, 289, 447,
450, 475, 485, 487, 495, 500, 507,
525, 604, 668, 711, 789, 826, 829,
839, 932, 974, 1008, 1021, 1035.
camphorated tincture, 123.
saffronized tincture, 681.
- Opodeldock balsam, 1080.
- Ovariectomy, 790.
- Ovi vitellum, 105.
- Oxygen, 143, 206, 226, 284, 360, 774.
- Pagenstecher's ointment, 684.
- Paraldehyde, 220, 225.
- Parasitocides, 302.

- Parcira brava, 152, 501.
 Pasteur treatment in hydrophobia, 140.
 Pencils, 864, 865.
 Penguahar djambi, 161.
 Pentol, 36.
 Pepsin, 146, 209, 262, 424, 755, 982.
 Pessaries, 790.
 Petroleum, 120, 333.
 Phenacetin, 162, 316.
 Phenol-sodique, 665.
 Phosphates, 233.
 Phosphorus, 247, 292, 547, 568, 696, 711.
 Phosphoric acid, 61, 211, 512, 565, 768.
 Photoxylon, 106, 120, 184, 273.
 Physostigma, 220, 225, 711.
 Phytolacca, 741, 755, 768, 1070.
 Picric acid, 120, 387, 1085, 1090.
 Pilocarpine, 423, 711, 987, 1035.
 Piper nigrum, 475.
 Pipsissewa, 768.
 Pix liquida, 105, 120, 196, 262, 315, 679.
 nigra, 475.
 Plantain, 162.
 Plaster bandage, 653.
 packet, 658.
 Plumbi acetas, 57, 127, 163, 191, 262, 235,
 290, 381, 560, 578, 593, 605, 976,
 712, 725, 844, 872, 922, 1070.
 carbonas, 711.
 iodidum, 680, 738, 795, 1070.
 oxidum, 934.
 nitras, 121, 196, 738, 755, 1090.
 subacetas, 68, 99, 116, 121, 130, 196,
 307, 475, 529, 639, 712.
 Podophyllin, 475.
 Politzer's process, 719.
 Polygonum punctatum, 547.
 Pomegranate, 921.
 Populus angulata, 346.
 Position, 824, 1029.
 in hemorrhage, 164, 669.
 in hernia, 447.
 in wounds of abdomen, 486.
 Potassa caustica, 309, 315.
 cum calce, 639.
 fusa, 226, 233, 247, 610, 755.
 Potassii acetas, 525, 586.
 bromidum, 46, 56, 65, 146, 219, 225,
 401, 475, 507, 557, 560, 569, 586,
 605, 738, 755, 787, 788, 789, 797,
 811, 829, 844, 910, 957, 982, 992,
 1021, 1036.
 bicarbonas, 59, 115, 525.
 bichromas, 681.
 cantharidas, 331.
 chloras, 182, 185, 193, 210, 247, 386,
 412, 435, 496, 605, 672, 755, 769,
 795, 844, 922, 1083.
 citras, 60, 525, 575.
 iodidum, 60, 181, 190, 374, 384, 401,
 427, 452, 553, 596, 598, 605, 645,
 700, 738, 760, 769, 786, 789, 803,
 879, 1050, 1080.
 nitras, 57, 60, 65, 393, 435, 919, 929.
 permanganas, 102, 105, 121, 150, 196,
 206, 233, 247, 262, 273, 415, 499,
 525, 587, 605, 665, 679, 725, 914,
 922, 1042.
 Potassii silicas, 196.
 sulphas, 427.
 Potato poultice, 71.
 Poultices, 57, 69, 184, 247, 382, 923, 1059.
 Pressure, 60, 165, 243, 248, 382, 669, 741, 758,
 890.
 Prinos verticillatus, 245.
 Pulsatilla, 551, 593, 605, 811, 829, 919, 922.
 Purgatives, 60, 175, 196, 449, 456.
 Putty, antiseptic, 82.
 Pyocetanin, 102, 121.
 Pyridine, 581, 605.
 Pyrogallie acid, 328.
 Pyrogallol, 340.
 Querci cortex, 291.
 Quercus alba, 455.
 Quillaria saponaria, 96.
 Quininae sulphas, 56, 178, 185, 193, 210, 214,
 216, 225, 262, 279, 292, 337, 345, 405, 413,
 435, 501, 606, 668, 702, 712, 762, 839, 845,
 922, 974, 1009, 1021, 1067.
 Quininae hypophosphis, 491.
 Relaxants, 449.
 Resorcin, 262, 325, 606.
 Respiration, artificial, 27.
 Rest, importance of, 50, 56, 127, 136, 463, 486.
 Revulsives, 165.
 Rhamnus catharticus, 1080.
 frangula, 475.
 Rhatania, 478.
 Rheum, 60, 247, 475.
 Rhigolene, 46.
 Rhus glabra, 413, 435.
 Ricord's paste, 208.
 Rochelle salt, 60, 484.
 Rotter's antiseptic mixture, 104.
 Rubefacients, 59.
 Rue, 808, 811, 975.
 Sabadilla, 334.
 Saccharin, 501.
 Saccharum, 206.
 Saffronized tincture of opium, 681.
 Sage, 1080.
 Saint John's wort, 130.
 Salicin, 725, 1049.
 Salicylate of bismuth, 406.
 Salicylic acid, 93, 101, 121, 126, 134, 182, 187,
 206, 212, 262, 273, 289, 309, 328,
 366, 424, 679, 712, 736, 739, 824,
 879, 920, 1044, 1090.
 tampons, 93.
 Salol, 101, 121, 262, 416, 426, 501, 584, 606.
 Salufer, 102.
 Sambuci unguentum, 204, 485.
 Sandal-wood oil, 493, 501, 576, 606.
 Sanguinaria, 582, 812.
 Sarsaparilla, 60, 619, 770.
 Saponin, 47, 289.
 Sassafras, 345, 712.

- Scarification, 197, 263, 402, 552.
 Sea-air and water, 771.
 Senega, 59, 812.
 Senna, 476.
 Serpentina, 345.
 Setons, 60, 391, 645, 695, 715, 731, 785.
 Silica, 756.
 Simaba cedron, 152.
 Sinapis, 63, 72, 547.
 Sinapisms, 72, 172, 1029.
 Slippery elm poultice, 70.
 Sodæ chlorinatæ liquor, 71, 411.
 Sodii acetat, 630.
 arsenias, 858.
 benzoas, 435, 712.
 bicarbonas, 91, 152, 273, 413, 496, 665,
 725, 756, 805.
 boras, 68, 130, 262, 413, 435, 485, 493,
 665, 712, 725.
 bromidum, 788.
 chloridum, 665, 679, 713.
 ethylas, 391.
 hypochloris, 679.
 phenas, 405, 672.
 salicylas, 187, 406, 665, 788, 800, 839,
 845.
 silicofluoride, 102, 121.
 sulphas, 241, 349, 668.
 sulphis, 104, 185, 194, 247.
 hyposulphis, 247, 339, 354, 499.
 Solar cautery, 392.
 Soziodol, 267, 274.
 Spermatorrhœal rings, 559.
 trusses, 559.
 Spiritus ammoniæ aromaticus, 173.
 Sponges, 92.
 Staphisagria, 334.
 Starch, 921.
 Starch poultice, 70.
 Startin's mixture, 322.
 Stigmata maidis, 525.
 Stillingia, 770.
 Stimulants, 174, 284, 982.
 Stomach-pump, 440.
 Stramonium, 476, 478, 713, 829, 910, 932,
 1038, 1070.
 Strophanthus, 174, 178, 833.
 Strychnine, 152, 171, 179, 222, 225, 510, 517,
 549, 565, 684, 713, 725, 812, 852, 982,
 1078.
 Stuping, 57.
 Styptics, when to use, 157.
 Styptic colloid, 158.
 collodion, 158.
 ferrated, 158.
 cotton, 159.
 lint, 159.
 Monsell's, 160.
 Martin's, 160.
 Orosi's, 159.
 Pagliari's, 160.
 Styrax, 348.
 Styra ne, 121.
 Sulfonal, 789.
 Sulphides, 233, 263.
 Sulpho-carbolates, 122.
 Sulphites, 122.
 Sulphur, 247, 306, 307, 308, 347, 351, 466,
 476, 756, 857.
 waters, 771.
 Sulphuric acid, 69, 122, 181, 182, 191, 208,
 639, 756.
 paste, 208, 750.
 Sulphurous acid, 130, 197, 263, 291, 323, 349,
 355.
 Suppositories, 914, 925.
 Suspension, 548.
 Sutures, 76.
 Tabacum, 153, 225, 458, 552, 945, 1070.
 Tampons, medicated, 913.
 uterine, 968.
 vaginal, 788, 1007.
 Tannic acid, 68, 122, 163, 234, 236, 263, 274,
 201, 351, 382, 393, 430, 471, 531, 569, 575,
 597, 606, 666, 668, 679, 713, 726, 756, 833,
 840, 846, 867, 870, 918, 919, 923, 974.
 Tanjore pill, 151.
 Tannin in powder, 106, 307, 316, 494.
 solution, Martin's, 160.
 Tansy, 812, 945, 976.
 Tapioca, 1083.
 Tar, 320.
 Taraxacum, 770, 829.
 Tartaric acid, 88, 839.
 Tartar emetic, 54, 789, 1011.
 Taxis, 449.
 Tayuya, 630, 770.
 Tents, 817, 847, 875, 876, 879, 880, 966, 967.
 Terebene, 99, 122, 125.
 Terebinthina canadensis, 122.
 Terebinthine oleum, 37, 101, 163, 172, 178,
 194, 197, 206, 215, 247, 274, 425, 436, 496,
 501, 607, 668, 701, 713, 756, 790, 803, 812,
 829, 846, 919, 974, 1044, 1058.
 Terra ponderosa, 566.
 Teucrium marum, 721.
 scordium, 339, 476.
 Thallin, 163.
 Thuja, 756.
 Thymol, 122, 321, 413, 937, 945, 1042.
 Tinctura ferri chloridi, 921, 943.
 Tobacco enemata, 458.
 poultices, 153, 552.
 Tonics, 182, 184.
 Torsion of arteries, 165.
 Toothache drops, 403.
 Tracheotomy, 147.
 Tradescantia erecta, 162.
 Transfusion of blood, 166, 1029, 1036.
 Trichlorphenol, 103, 123.
 Triticum repens, 497, 502, 525.
 Trusses, 450.
 Tuberculin, 329.
 Tully's powder, 1054.
 Turkish baths, 596.
 Turpentine stupes, 785.
 Ulmus, 70, 476.
 Unguentum hydrargyri rub., 289.

Ungentum picis juniperi, 357.
petrolei, 274.

Urethan, 220, 225.

Urtica urens, 157.

Ustilago, 898.

Uva ursi, 495, 502.

Vaccination, 392.

Valerian, 173, 820.

Valsalva's process, 719.

Venesection, 53, 64, 73, 145, 147, 175, 176,
226, 274, 276, 451.

Veratrine, 789, 829, 867.

Veratrum viride, 52, 55, 65, 156, 163, 215, 291,
369, 382, 401, 569, 1036, 1042, 1058.

Verbascum thapsus, 476.

Viburnum prunifolium, 814, 829, 846, 974.

Vichy water, 521.

Vienna paste, 182, 871.

Vieirine, 770.

Villate's solution, 639.

Vinegar, 57, 176, 877, 1027, 1070.

Vinum aromaticum, 529, 611.

rubrum, 587.

Ward's paste, 475.

Warm immersions, 51, 111, 267.

Water, 56, 111, 184.

hot, 942, 976.

Whiskey as a dressing in wounds, 115.

White oak bark, 922.

Woorara, 146, 225.

Xanthium spinosum, 144.

Xanthoxylum, 436.

Yeast poultice, 71.

Zinci acetas, 428, 564, 569, 923.

boras, 607.

bromidum, 509, 910.

carbonas, 315, 614.

chloridum, 83, 95, 101, 123, 207, 263,

313, 392, 607, 634, 655, 679, 729,

747, 756, 879, 935, 1076.

glycerite, 478.

iodidum, 392, 428, 770.

nitras, 392.

oxidum, 71, 102, 274, 305, 315, 507, 713,

846, 923, 945, 1088, 1090.

phosphidum, 325, 547.

sulphas, 206, 263, 469, 531, 569, 574,

607, 665, 670, 692, 713, 726, 756,

840, 846, 867, 870, 879, 928, 1076.

sulpho-carbolas, 574, 607, 923, 927.

valerianas, 476.

Zingiber, 56.

Zittman's decoction, 619.

III. INDEX OF DISEASES.

Abdomen, wounds of, 486.

Abortion, 964.

Abscess, 227.

Acne, 307.

sebacea, 307.

rosacea, 311.

Adenoma of breast, 1072.

After-pains, 1014.

rheumatic, 1019

spasmodic, 1017.

Agalactia, 1080.

Amaurosis, 683.

Amenorrhoea, 798.

Anaphrodisia, 903.

Aneurism, 374.

Angioma, 387, 728.

Anthrax, 181.

Antiflexion, 889.

Antiversion, 888.

Antrum, diseases of, 761.

Anus, fissure of, 477.

fistula of, 480.

prolapsus of, 482.

pruritus of, 485.

Aphthae, 404.

Appendicitis, 464.

Arrow-wounds, 138.

Arthritis, 649.

Asphyxia, 359.

from inhalation of noxious gases,

359.

from choking, 362.

from drowning, 363.

Atony, uterine, 1008.

Auricle, eczema of, 715.

Aurium, tinnitus, 721.

Balanitis, 529.

Balls, extraction of, 135.

Barber's itch, 349.

Bed-sores, 234.

Bites of mad dogs, 140.

of snakes, 147.

Bladder, lesions of, 526.

irritable, 502.

Bleeding, 156.

Blenorrhoea, 571.

Blepharitis, 684.

Boils, 236.

Bones and joints, lesions of, 637.

- Bones and joints, caries and necrosis of, 639.
fractures of, 641.
inflammation of, 645.
tuberculous and scrofulous lesions, 640.
- Brain, concussion of, 656.
compression of, 657.
injuries to, 655.
- Breast, adenoma of, 1072.
cancer of, 1073.
carcinoma of, 1076.
hysterical, 1073.
sarcoma, 1072.
scirrhous of, 1072.
- Bronchocele, 729.
- Bruises, 127.
- Bubo, 636.
- Bunion, 637.
- Burns, 264.
of the eye, 703.
- Calculus, renal and vesical, 517.
- Cancer, 740.
of the stomach, 440.
tongue, 751.
uterus, 741, 742.
- Cancrum oris, 409.
- Carbuncles, 236.
- Carcinoma, 740.
- Caries, 639.
of the teeth, 397.
- Caruncle, urethral, 934.
- Case-taking in midwifery, 959.
- Catarrh, post-nasal, 670.
vaginal, 912.
- Catarrhal cystitis, 489.
- Cellulitis, pelvic, 1050.
- Cervicitis, acute, 850.
chronic, 850.
- Chancre, hard, 608.
soft, 634.
- Chancroid, 634.
- Charbon, 181.
- Chest, wounds of, 368.
- Chilblains, 284.
- Choking, 362.
- Chordee, 579.
- Coccygodynia, 1064.
- Colpitis, 912.
- Cold, effects of, 284.
- Compression of the brain, 657.
- Concussion of the brain, 656.
- Congenital syphilis, 632.
- Conjunctival diseases, 685.
- Conjunctivitis, gonorrhœal, 594.
scrofulous, 694.
- Contused wounds, 124.
- Contusions, 127.
- Corneal diseases, 695.
- Corns, 736.
- Cutaneous erysipelas, 185.
- Cynanche, 421.
- Cystitis, 489, 945.
- Cysts, mucous, 729.
vaginal, 934.
- Dakryocystitis, 669.
- Deafness, 721.
- Dissecting wounds, 183.
- Drowning, 363.
- Duct, obstruction of, nasal, 669.
- Dysmenorrhœa, 812.
- Dyspærunia, 928.
- Dysuria, 502, 953.
- Ear, lesions of, 715.
polyps of, 721.
- Ecchymosis, conjunctival, 703.
- Eclampsia, puerperal, 1030.
- Eczema, 315.
vulvæ, 939.
of the auricle, 715.
- Embolism, 383.
- Emissions, nocturnal, 558.
- Empyema, 365.
- Endocervicitis, 851.
- Endometritis, 851.
- Enuresis, 507.
- Epididymitis, 552.
- Episcleritis, 688.
- Epistaxis, 667.
- Epithelioma, 740.
- Erectile tumors, 387, 737.
- Erysipelas, 185.
- Erythema, 321.
- Extraction of balls, 135.
- Eye, lesions of, 683.
burns and scalds, 703.
ecchymoses, 703.
- Farcy, 206.
- Fatty tumors, 733.
- Favus, 323.
- Felon, 248.
- Fever, puerperal, 1042.
- Fever, surgical or traumatic, 215.
thermic, 275.
- Fibroid and fibrocystic growths, 728.
- Fissure of the anus, 477.
- Fistula of the anus, 480.
- Floating kidney, 510.
- Fractures of bones, 641.
- Frost-bite, 284.
- Frozen limbs, 284.
- Furuncles, 236.
- Galactoceles, 1074.
- Galactorrhœa, 1078.
- Ganglion, 637.
- Gangræna oris, 409.
- Gangrene, 197.
hospital, 198.
senile, 202.
thrombotic or embolic, 203.
- Glands, 206.
- Glands, enlarged, 734.
- Glandular hypertrophy, 734.
- Gleet, 586.
- Goitre, 729.
- Gonorrhœa, 571, 586.
- Gonorrhœal conjunctivitis, 594.

- Gonorrhœal ophthalmia, 594.
 orchitis, 592.
 prostatitis, 590.
 rheumatism, 596.
 Granular lids, 688.
 Gravel, 517.
 Growths, fibrous, 891.
 malignant, 899.
 non-malignant, 889.
 vaginal, 932.
 Gums, hemorrhage from, 161.
 Gunshot wounds, 133.
 Gynecological examination, 779.

 Hard chancre, 608.
 Head, wounds of, 654.
 Heat-apoplexy, 275.
 effects of, 264.
 exhaustion, 278.
 fever, 275.
 Hemorrhage, 156.
 puerperal, 1022.
 Hemorrhoids, 466.
 Hereditary syphilis, 632.
 Hernia, 443.
 irreducible, 452.
 Herpes, 325.
 progenitalis, 326.
 zoster, 325.
 Hordeolum, 702.
 Hydrocele, 532.
 of infants, 534.
 Hydrophobia, 140.
 Hygiene of puerperal state, 962.
 Hypertrophy of the tonsils, 427.
 of the prostate, 512.
 of glands, 734.

 Icterus gravidarum, 988.
 Impetigo, 327.
 Impotence, sexual, 536.
 Incontinence of urine, 507.
 Inflammation, preventive treatment of, 49.
 immediate treatment of, 53.
 chronic, 60.
 Inherited syphilis, 632.
 Injuries (see Wounds).
 Insects, stings of, 153.
 Insolation, 275.
 Intestinal obstruction, 456.
 perforation, 462.
 Intralaryngeal growths, 726.
 Intussusception, 456.
 Iritis, 697.
 rheumatic, 700.
 syphilitic, 699.
 Irritable bladder, 502, 953, 955.
 prostate, 512.
 Ischuria, 953.
 Joints, diseases of, 637.
 Joints, inflammation of, 649.
 tubercular and scrofulous, 640.

 Keratitis, 695.
 phlyctenular, 697.
 Kidney, calculus of, 517.

 Kidney, floating, 510.
 injuries of, 526.
 Labor, anæsthetics in, 993, 997.
 antiseptics in, 1001.
 induction of, 971.
 premature, 964.
 tedious, 1008.
 Lacerated wounds, 124.
 Laryngitis, syphilitic, 632.
 Larynx, growths in, 726.
 Leech-bites, bleeding from, 161.
 Lepra, 328.
 Leucorrhœa, 912.
 Lichen, 332.
 Lightning-stroke, 274.
 Lipoma, 733.
 Lithiasis, 517.
 Lockjaw, 217.
 Lupus, 329.
 Lymphangitis, 385.
 Lymphoma, 733.

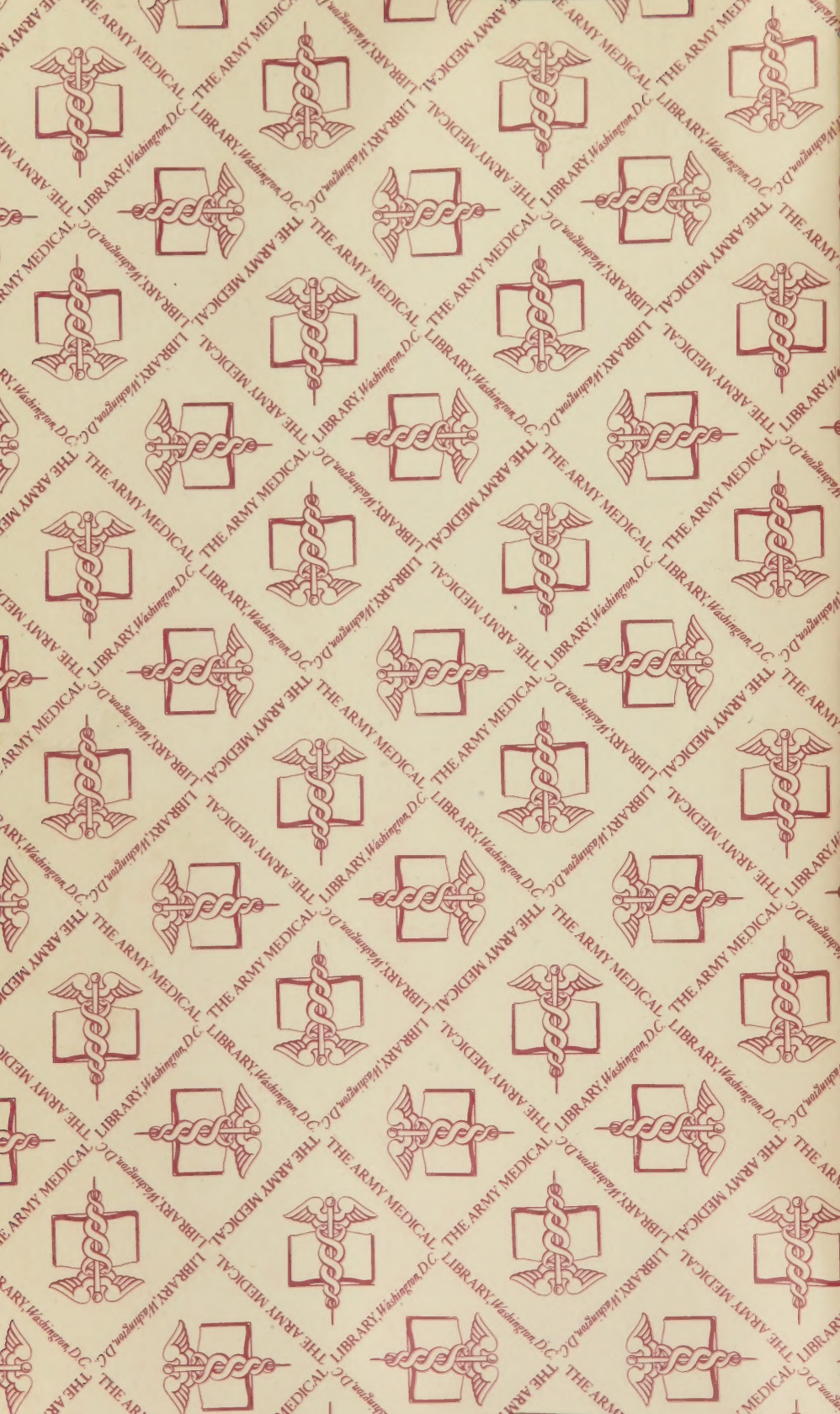
 Mad dogs, bites of, 140.
 Malignant pustule, 181.
 sore throat, 416.
 tumors, 739.
 Mammary abscess, 1066.
 neuralgia, 1077.
 tumors, 1072.
 Mammitis, acute, 1069.
 chronic, 1069.
 Mania, puerperal, 1037.
 Mastitis, 1066.
 Mastodynia, 1077.
 Masturbation, 548.
 Menorrhagia, 830.
 Mentagra, 349.
 Metritis, 850, 856.
 chronic, 850.
 chronic parenchymatous, 857.
 puerperal, 1050.
 Metrorrhagia, 832.
 Mothers' marks, 387.
 Mucous cysts, 729.
 patches, 631.

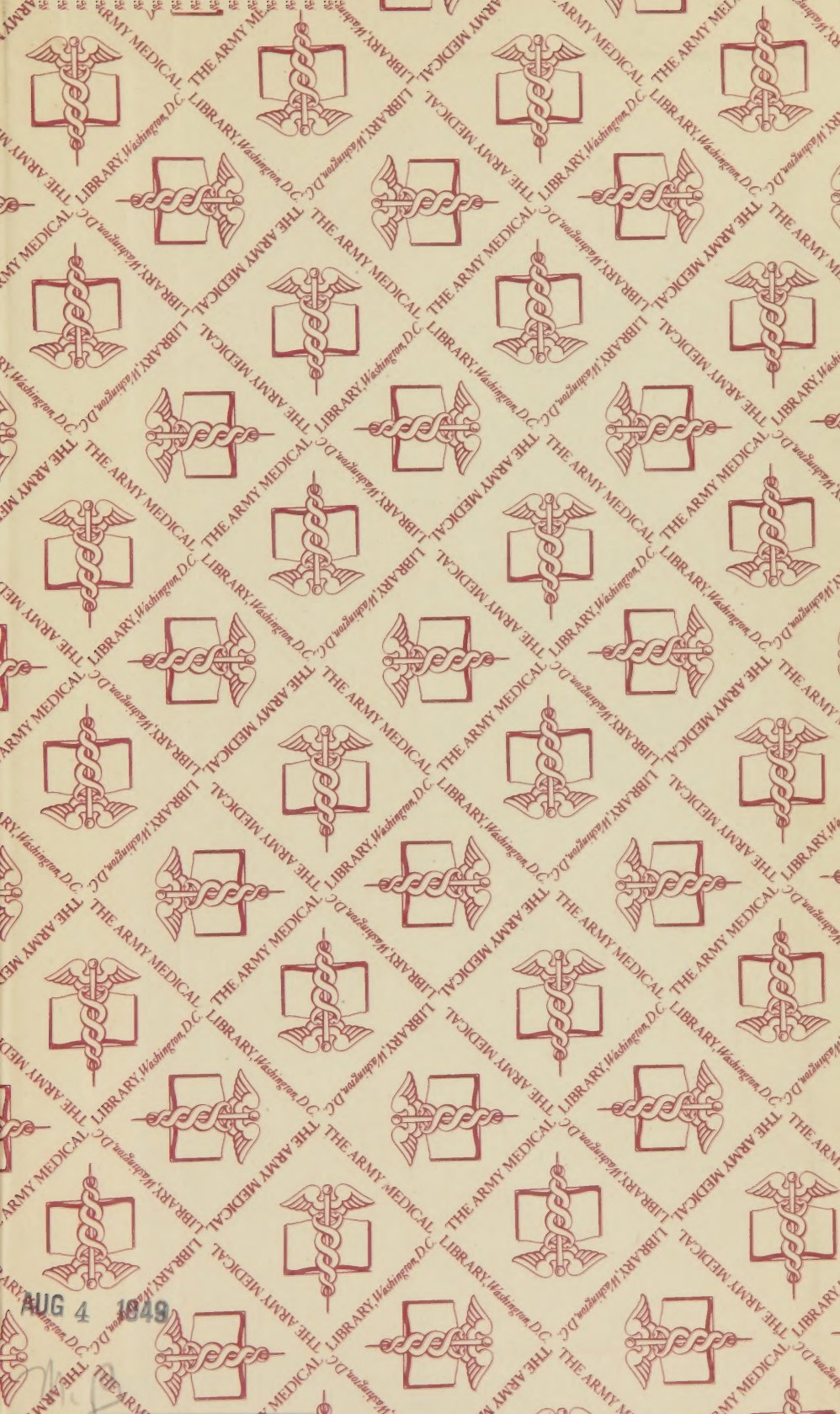
 Nævus, 387, 728.
 Nasal diseases, 661.
 duct, obstruction of, 669.
 Neck, injuries of, 371.
 Necrosis, 639.
 Neuralgia, traumatic, 166.
 Nipples, diseases of, 1084.
 fissures of, 1086.
 ulceration of, 1084.
 Nocturnal emissions, 558.
 Noma, 409.
 Nose, diseases of, 661.
 bleeding from, 667.
 Nose, polyps of, 680.

 Obstruction, intestinal, 456.
 of nasal duct, 669.
 Occlusion, intestinal, 456.
 Odontalgia, 397.
 Edema of prepuce, inflammatory, 593.

- Oesophagus, stricture of, 436.
 Oligogalactia, 1080.
 Onanism, 548.
 Opacity of the cornea, 695.
 Ophthalmia, 693.
 gonorrhœal, 594.
 scrofulous, 694.
 purulent, 693.
 Orchitis, 592.
 Os, granulation of, 868.
 rigidity of, 1008.
 ulceration of, 868.
 Osteitis, 645.
 Otitis, 716.
 Otorrhœa, 719.
 Ovarian tumors, 792.
 Ovaritis, acute, 781.
 chronic, 781.
 Ozæna, 671.
 Pain, 166.
 Panaris, 248.
 Paralysis, 178.
 Paronychia, 248.
 Pediculosis, 333.
 Pelvic, cellulitis, 1050.
 peritonitis, 1050.
 Perforation of intestine, 462.
 Periodontitis, 401.
 Periosteitis, 645.
 Peritonitis, pelvic, 1050.
 Perityphlitis, 464.
 Pernio, 284.
 Phagedæna, 207.
 Pharyngitis, 414.
 chronic, 417.
 malignant, 416.
 syphilitic, 631.
 Phlebitis, 392.
 puerperal, 1050.
 Phlegmasia dolens, 1059.
 Phlyctenular keratitis, 697.
 Photophobia, 700.
 Phtheiriæsis, 333.
 Piles, 466.
 Pityriasis, 335.
 Placenta prævia, 1006.
 Poison oak, 343.
 Poisoned wounds, 154.
 Polypi, aural, 721.
 nasal, 680.
 uterine, 889, 895.
 Polyuria, 953.
 Post-mortem wounds, 183.
 Post-nasal catarrh, 670.
 Pregnancy, albuminuria of, 989.
 constipation of, 987.
 cutaneous lesions of, 986.
 diarrhœa of, 987.
 digestive derangements of, 987.
 extra-uterine, 791.
 icterus of, 988.
 insomnia of, 984.
 nervous cough of, 985.
 neuralgia of, 984.
 palpitation of, 983.
 Pregnancy, syncope of, 984.
 vomiting of, 976.
 Prepuce, œdema of, 593.
 Procidentia, 887.
 Prolapsus of anus, 482.
 Prostate gland, diseases of, 512.
 enlargement, 512.
 inflammation, 512.
 Prostatitis, gonorrhœal, 590.
 Prurigo, 337.
 Pruritus, 338.
 of anus, 485.
 vaginæ, 937.
 vulvæ, 936.
 Psoriasis, 340.
 Puerperal convalescence, 1062.
 eclampsia, 1030.
 fever, 1042.
 hemorrhage, 1022.
 mamæ, 1032.
 metritis, 1050.
 phlebitis, 1050.
 pyæmia, 1042.
 septicæmia, 1042.
 Punctured wounds, 131.
 Pustule, malignant, 181.
 Pyæmia, 201.
 chronic, 212.
 Pylorus, stricture of, 440.
 Quinsy, 421.
 Railway shock, 176.
 Rectum, stricture of, 483.
 Retroflexion, 889.
 Retroversion, 889.
 Rheumatic iritis, 700.
 Rhinitis, 682.
 Rhus toxicodendron, 343.
 Ringworm, 353.
 Rosacea, 311.
 Rupture, 443.
 Sabre wounds, 137.
 Salpingitis, 790.
 Scabies, 346.
 Scalds, 264.
 of the eye, 703.
 of the glottis and larynx, 271.
 Scaldhead, 323.
 Scirrhus of the breast, 1072.
 tongue, 751.
 Scrofula, treatment of, 758.
 Scrofulous disease of the joints and bones, 640.
 conjunctivitis, 694.
 enlargements of glands, 763.
 ulcers, 765.
 Self-abuse, 548.
 Seborrhœa, 313.
 Septicæmia, 209.
 Serpent bites, 147.
 Sexual impotence, 558.
 Shock, 171.
 railway, 176.
 insidious, 174.
 Skin, diseases of, 292.

- Skull, injuries of, 654.
 Snake bites, 147.
 Soft chancre, 633.
 Sore throat, 414.
 chronic, 417.
 malignant, 416.
 syphilitic, 631.
 Spasm, traumatic, 178.
 Spermatorrhœa, 558.
 Spine, lesions of, 658.
 Spina bifida, 658.
 Sprains, 647.
 Sproue, 410.
 Sterility, 903.
 Stings of insects, 153.
 Stomatitis, 404.
 aphthous, 404.
 catarrhal, 408.
 gangrenous, 409.
 parasitic, 410.
 Stone in the bladder and kidney, 517.
 Strangury, 502.
 Stricture of œsophagus, 436.
 pylorus, 440.
 rectum, 483.
 Stroke, lightning, 274.
 sun, 275.
 Struma (see Scrofula).
 Styes, 702.
 Subcutaneous wounds, 132.
 Sunstroke, 275.
 Surgical fever, 215.
 Svcosis, 349.
 Synovitis, 649.
 Syphilides, 629.
 Syphilis, 608, 615.
 congenital, 632.
 eruptions of, 629.
 iritis in, 699.
 laryngitis of, 632.
 mucous patches in, 631.
 sore throat in, 631.
 tertiary, 615.
 Teeth, caries of, 397.
 pain in, 397.
 Testicle, inflammation of, 553, 592.
 Tetanus, 217.
 Thermic fever, 275.
 Throat, sore, 414.
 chronic, 417.
 malignant, 416.
 syphilitic, 631.
 Thrombosis, 383.
 Thrush, 410.
 Tinea, 353.
 Tinnitus aurium, 721.
 Tonsillar hypertrophy, 427.
 Tonsillitis, 421.
 Toothache, 397.
 Trachoma, 690.
 Traumatic fever, 215.
 paralysis and spasm, 178.
 pain, 166.
 Tumors, 728.
 Typhlitis, 464.
 Ulcers, 250.
 of cornea, 695.
 of cornea, syphilitic, 697.
 indolent, 251.
 scrofulous, 765.
 sloughing, 259.
 varicose, 260.
 Urethritis, 950.
 Urinary disorders, 953.
 Urine, incontinence of, 507, 956.
 retention of, 502.
 Urticaria, 356.
 Uterine dyspepsia, 857.
 inflammations, 849.
 Uterus, diseases of, 848.
 Vaginismus, 928.
 Vaginitis, 911.
 acute, 912.
 chronic, 912.
 gonorrhœal, 925.
 specific, 926.
 Varicocele, 569.
 Varicose veins, 393,
 ulcers, 260.
 Vegetations, vaginal, 934.
 Veins, varicose, 393.
 Vulvitis, 936.
 Warts, 736.
 White swelling, 640.
 Whitlow, 248.
 Winemarks, 387.
 Wounds, arrow, 138.
 contused, 124.
 complications of, 156.
 dissecting, 183.
 gunshot, 133.
 infectious complications of, 181.
 incised, 124.
 of the abdomen, 486.
 chest, 368.
 eye, 432.
 head, 654.
 neck, 371.
 spine, 658.
 poisoned, 154.
 punctured, 131.
 sabre, 137.
 subcutaneous, 132.
 treatment of, aseptic, 85.
 alcoholic dressing in, 113.
 antiseptic, 79.
 dry dressing in, 112.
 earth dressing in, 113.
 general, 74.
 hydropic dressing in, 111.
 occlusion, 106.
 open, 108.
 Zoster, 325.





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